No. 25.

Field Book

of

Willis L. Jepson

—"—

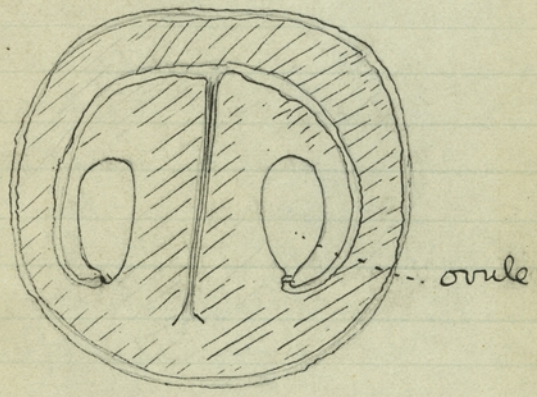
University of California,
Berkeley

If lost finder please return to W.L. Jepson, Department of Botany and receive reward.

— 1912 —

Mill Valley, Mar. 26, 1912.

– Micrampelis marah. Ovary 2-celled, 3 ovules on each placenta, (or 4)



– Tubercles on Ceanothus. Found well developed tubercles on Ceanothus foliosus roots. Four or five plants examined also found well-developed

Mill Valley

tubercles on C. rigidus (but it had practically entire leaves), and also on C. thyrsiflorus. The individual of C. thyrsiflorus was a large one, 15 ft. tall perhaps and the tubercles were found on the smaller roots six feet from the base of the trunk.

As a rule the tubercles were not difficult to find.

* see next p.

No. 4765. Ceanothus cuneatus (Hook.) Nutt. rigidus but leaves entire! or practically so.

Obtained on the first ridge south of Mill Valley

March 26, 1912

Geo. J.

– * p. 2., Pierce. Cf. Root-tubercles of Medicago dent. and some other Leg. plants. – 1902.

– Lobb, Wm. cf. Ribes lobbii, Gray. Eriogonum lobbii

– Orcutt, C.R.

"My agreeable associate, C. R. Orcutt" – C.C. Parry, in Davenport Acad. Nat. Sci. Proc. IV, 35.

– Stillman, J.B.D. + Harkness, H. W., portrait-figures in Thomas Hill's large painting, "Driving the Last Spike", [Overland Railway] in Golden Gate Park Art Museum.

– Calochortus umbellatus Wood. Mill Valley.

Berkeley

– Lysichiton Kamtschatcensis Schott. Spathe pale yellow. Spadix 2 inches 4 lines long. Sepals 4, Stamens 4, with broad filaments, ovary inferior! I can make out only 1-cell, but material insufficient. To be studied again as to that point since Engler & Prantl say 2-celled (cf. Nat. Plfzfam. II, 3; 122). — Coll. by Miss M. L. Hutchinson near Felton, Mar. 21, 1912.

Apr. 1912.

– Poisonous & irritant plants :- Poisonous skin hairs := Primula spp; Laportea or irritant gigas, Cypripedium species, Crucifers with large brittle hairs, Nettles, etc. — cf. Gusson in Ottawa Nat. 25; 112.

– Styrax Californica, Setchell, Oroville, Stamens 12 [circa 1898] Santa Barbara, Bishop Barnard, Apr '11.

– Greene, E. L. Sketch of his life in American Catholic Who's Who, 1911

– Brodiaea, pest of bulbs near Stockton circa 1911. acc. A. D. Fifield, 451-44th St. Oakland.

– Haenke, Tad.; coll. Rosa nutkana; at Nootka Sound. Menzies had gotten it prev. but Presl pub. on Haenke's spm.

Berkeley

– Lichens on Cal. Live Oak. hanging common form = Ramalina reticulata.

– California Explorer. James Dwight Dana. Life of, by D.C. Gilman, 1899 (Harper + Bros.)

– Cyperus acuminatus. I had marked out the following point- at time of final rev. of ms. for Fl. Cal but inadvertently it did not get in. One specimen seen from Calif. of Cyperus acuminatus T. & H. Mr. Parish sends me a spm. from Round Mdw, 7000 ft., 12 July '02, Geo. B. Grant. with fine but marked reticulation on sides of scales. This character distinguishes acuminatus from virens and aristatus. Aristatus moreover is conspicuously rough on the scales, acuminatus far less so or obscurely so and with few nerves.

Apr. 1912.

– Cyperus – I am referring spms. as follows:

C. speciosus. Visalia, Congdon; L.A., Braunton 578; Parish 3819, 6432; Tucson, Thurber. Some of these are labled speciosus and some ferax. I am not able to separate these specimens into 2 species. The chaffs are marked at maturity by their suggestions of constrictions at each scale and they may readily be broken up into 1-seeded joints. The scales are long and hug each other closely, even at tips. In C. strigosus (Mormon Bar, Congdon) has very long straight straminous scales but

the tips forming a serrated edge to rhachilet.

Sonoma Valley

= M. hispida var. confinis

No. 4768. Medicago apiculata Willd. Burs without prickles, or the prickles reduced to warts. Also in the same lot the ordinary Burry type. I do not see any other difference between the two unless a slight difference in the size of the corollas. Smooth-bur corolla perhaps a little larger. After examining a number of fls. I should say banner of prickless plant is orbicular as you look at it; of prickly bur is quadrate or somewhat so. Sides of banner rounded in former, straight sides in latter.

Apr. 17, 1912.

No. 4769. Wyethia glabra The whole plant as if painted with a sticky oil or rather the whole foliage which is very abundant with very large leaves. The stem is leafy and to the top and with leaves almost as large as the basal leaves. Involucral bracts very broad and foliaceous. Rays with a color distinctive and different from any other Wyethia or Balsamorhiza that I know, -- say a straw yellow. Crown of the achene consisting

Sonoma Valley

of 6 to 8 scales united about half-way, their ovate-acute points very finely and irregularly laciniate, almost ciliate in character. I describe this disk but the ray is not different

No. 4770. Trifolium tridentatum
Very common and rank

No. 4771. Peucedanum nudicaule Nutt. not rare.

– Eschscholtzias in fine fettle! and the Lasthenias making gold spots on the edge of the salt-marshes – most wonderful in the sunlight.

April 17, 1912

– Vicia sativa, common here. Spot on stipule constant so far as noticed. Flowers very large and conspicuous.

Decato, Apr. 30.

In the low flat by S.P. railway back north of Decoto just where it passes under Western Pacific track, the finest colonies of Tissa macrotheca I ever saw. The pale pink flowers were very beautiful.

Vacaville, May 3,

– Eschscholtzia californica quite absent from the railway track and fields by Violet where in some years I have found it so abundantly.

Mt. Diablo from Vacaville. May 3, 1912.

– Populus fremontii – seeds of the Cottonwood now flying, filling the air with a shower of floating bodies, a little like snowflakes. The children receive this phenomenon as a part of their fairy world. The white tufts come out of nowhere and dance in the sunshine, and pass to earth.

– Met Hart North in the street of Vacaville. He has land in Berryessa Val. which he is planting to fruit and thereby is removing Valley Oaks. He speaks, as others, of the great flow of water from the cut bluff – "ran a stream", as he expressed it.

– Pannell, L. H. of Ames Iowa, called for me afternoon about 4 p.m. Took him over the grounds & gave him specimens of conifers.

Berkeley

– Grinnell has been in the Cuyama country. Says Ephedra* grows there in the form of a tree. 10 ft. h. and 6-8 in. in diameter. Says I must include it in my next account of the trees of California. Mountain Sheep were in that country as late as 7 or 8 years ago! Valley floor 2000 feet high. Vegetation represents a tongue of the Mohave.

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* Probably E. californica.

May 5, 1912.

– Ralph Hoffman says: Timber belt south of the San Joaquin River is a sharp line where it meets the chaparral; in a hundred yards you pass from the chaparral into the forest. North of the San Joaquin R. in Madera Co. and north the timber scatters over the chaparral and it is difficult to say where the timber belt begins. "Apple Pine" of the lumbermen is Pinus Jeffreyi; you can detect the odor 100 yds. near a sawmill where it is being cut.

Berkeley

– Lewisia rediviva. In one flower I made the following counts:

Stamens	42
Styles	6
Petals	14
Ovules	13
Sepals	8

Sent from Laguanitas, Marin County by Miss Hutchinson.

Stamen filaments very loosely cellular at base! Filaments united at base!

Flower no 2

Stamens	about 40
Styles	7
Petals	15
Ovules	13
Sepals	7

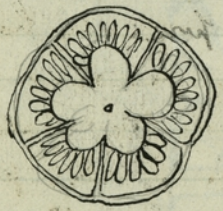
May 18, 1912

Flower no. 3

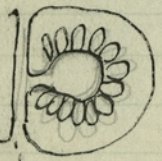
Stamens	47
Styles	7
Petals	13
Ovules	13
Sepals	7

Berkeley

– Gaultheria Shallon.



Cross-sect. ovary. The placentæ project more heavily into the cells than represented in the sketch which is very rough. The above is a rough cross-section and really gives a wrong idea of the placentæ seen longitudinally it is like this:



Columella.

I should say the placentæ were borne at about the middle of the short col-

May, 18, 1912.

umella and perfectly horizontal, not ascending as said by Gray in Syn. Fl. – My material was sent in fresh, probably from Marin County, but without any indication of origin. Monterey! Miss Eloise Tift.

↑Later:–

Berkeley

No. 4772. Carpinteria californica.
Bot. Gard., Berkeley.
Petals mostly 6, often 7, sometimes 8 or 5. Stamens 150 to 200. Flowers at most 2 3/4 inches broad.

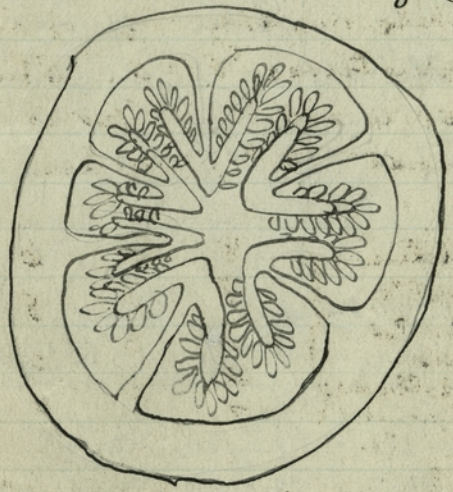
Partition walls, counted as follows: i.e. placental plates.	8	6	6	5
	7	3	5	5
	7	6	6	
	4	4	6	
	2			

In no case were these walls joined in axis except rarely a little at base*. Of course at very base they are almost necessarily joined.

See p. 22

May 20, 1912.

The placental plates, 2 from the margin of each partition, bear ovules on each side or face.



A very rough sketch but showing the way in which the partition walls project into the centre. They approximate more closely than here shown but are quite distinct!! The placentae and ovules fill the "cells" more compactly than shown.

Berkeley

Sometimes but rarely the partition walls are actually joined in axis, or at least in lower part of ovary.

The petals in our plants here are almost always 6 or 7. Sepals 5, sometimes 6.

I now find a considerable number more with partitions united at base but not above.

Climate – Rained heavily at end of May, showery and threatening for a week. The spring has been very late, cold. First days of June very hot. – June 2, '12

– Bridges, Thos. Discovered Primula californica acc. Gray, Syn. Fl. vol. 2, p. Early part of vol. 2 place lost.

May 1912.

– Mrs. Brandegee is very ill and is not expected to recover. Diabetes. She is about 65 years old. Her life has been a peppery one. Undoubtedly with a genuine interest in botany and with real ability, she has yet used her botany to gratify personal hatreds. It has been used as a means of attacking someone whom she chose to dislike. And it was necessary for her to have some one to attack. It was her life to "follow up" the work some one was publishing and find in it as many mistakes as possible. It is needless to say that any one can find plenty of occupation at such a task. – May 31, 1912.

Barstow 2100 ft.

No. 4773 Pluchea sericea Cov. Called Arrow-weed* here and along the Colorado. Grows 6 to 10 ft. high here in erect willow-like clumps. There is a patch of it to windward of Miss Waterman's garden. The foreman said: "It's worth a thousand dollars". The winds blow very hard in the spring and early summer and would whip a garden all to pieces. Cont: p. 34, 36.

– Watermelons. Raised here very fine ones. The coyotes trouble the patch, are very fond of them and always get the earliest – "They know they are ripe before we do".

* Colorado River Indians made arrows from it.

– Populus fremonti. Its yellow green crowns are very refreshing to the eye along the Mohave river. Miss Waterman has a drinking trough cut from a cottonwood log, creosoted outside, tarred inside, and kept off the ground it does very well.

– Mesquite (Prosopis pubescens.) Furnishes bean forage to the cattle and wood for the house. "The mesquite grove along the river is our woodlot". "The Mesquite (Prosopis pubescens) has come into foliage since I went away" said Miss Waterman. "It is my index as to planting. Things are safe from frost when it leaves out. If

Barstow 2100 ft.

has lived here a long time and knows when it is safe to send out its leaves."

— Wind. "We plant alfalfa seed in August or Sept. after the winds go down. In spring the seed is blown out of the ground. Alfalfa planted in October last has yielded one crop and we will take four more this season. This is on river bottom, when it takes hold quickly, the water 6 feet below. It will have to be renewed in about five years. On mesa it takes longer to establish, four or five years but does not need renewal."

— Miss Waterman

— Distichlis maritima. Salt-grass. The water kills it out in the fields or checks but it persists along the ditches and is useful in holding the banks. I noticed that where it grew thickly along the ditches that the ditch was straight, narrow and in fine shape.

— Heliotropium curassavicum. In fl. here, in saline spots.

— Climate. Winds in spring & summer. Quiet in fall. Temp. to 104°– , in summer; to 6° in winter; also said to go to zero. Sometimes snow.

No. 4774. Larrea divaricata Cav. ~~glutinosa Jepson~~ ~~tridentata Cov var.~~
Petals 5 yellow, twisted half round ~~so~~ as to be turbine-windmill fashion. Stamens 10, each with a large laciniate-toothed scale at base, the filament attached to base of scale outside. Leaves boiled to make a lotion for drawing sores on stock. Branches ringed with a black-glandular ring at nodes!!

No. 4775. Cassia armata Wats.
Petals 5, roundish, equal, three above, two below but really regular in position, the middle upper one retuse. Fertile stamens 7, with upcurved upwardly attenuate anthers, the style upcurved; ovary whitish pubescent; three sterile stamens, short filaments on upper side.

Corolla bright salmon color. Bush 2 to 4 ft. high, with numerous flowering racemes arising from much-branched stems, forming a low broad bush (twice as broad as high, quite glorious all yellow spot on the desert gray) the old stems bending over eventually as new ones take their place in center the old dead stems forming a chevaux-de-frise about base. Stems of the season thickish, greenish, almost destitute of leaves, the leaves with thickened rachis and reduced leaflets. Sepals elliptic, distinct or essentially so, about concolorous with petals.

Barstow 2100 ft

No. 4776. Salazaria mexicana Nuttels whitish at this stage, papillate – tessalate. Shrub 3–4 ft. h. Main stems of the shrubs simple below, intricately branched above, many stems bare and forming a clumpy bush.

No. 4777. ~~Ambrosia~~ Franseria dumosa Gray ex Torr. Low bush 1½ ft to 18 in high.

No. 4778. Eriogonum inflatum var. inflatum. Stems inflated. Outer per. segments lanceolate, inner triangular-lanceolate, all hairy on back. The outer with ciliate tips as seen from above, the inner not. Stamens 9. Disk about base of ovary. Fls. pale yellowish. Annual.

No. 4779. Lycium pallidum Miers Berry dull whitish. Low thorny bush 20 in. h. Leaves large

No. 4780. Lycium andersonii Gray. Leaves very small. Cf. preced. Berry red.

No. 4781. Echinocactus (Polycephalus Engelm. & Bigel.) One individual cactus oval, 9 in. high, many cacti in a close cluster 18 in. high. Spines in a circle 7 with one ~~extra~~ always in centre making 8, sometimes with 1 or 2 extra beyond the circle but on the cushion. Top of the cactus filled in with a woolly cushion.

Barstow. 2100 ft.

– Away westerly, towering on the distant horizon, are the San Bernardinos their tops (Grayback at one end and San Bernardino at the other) shining with snow. Running westerly one sees the thin green line of the Mohave River, its course marked by the cool green of the mesquite trees in its bottom; then its course turning southwesterly to Cajon Pass (at the western end of the San Bernardinos), faintly seen from here.

Away to the south, almost south, is a high snowy range I don't yet place. And southeasterly is a high

mountain mass, rather sharply defined, the only at all high mass near here.

In the Mohave bed here, the mesquite grows dense and of even height. At a little distance the Mohave bed looks wonderfully like a lovely green meadow – in happy contrast to the glaring burning colored mesas and hills all around. Off to the south-east or a little west of S.E. beyond the nearer range one can see a bald lofty mt. It looks high enough to have timber but hasn't. This summit tells the position of the Ord Mts.

No. 4773. Cont. p. 24. At a little distance the inexperienced traveler or even the keen one might mistake these clumps for willows.

No. 4782. Lycium torreyi. Cont. p. 37. Berry red, half covered* by the calyx. Shrub 7 ft. high, thorny. Branches with divaricate flexuous branchlets.**

* not in general.

No. 4783. Atriplex confertifolia Dense bushes 10 to 18 in. h. The long slender spines represent last years inflorescences.

No. 4784. Ephedra ~~californica~~ Called "Mexican Tea" by people at Barstow, who use it medicinally.

** Corollas always illegitimately punctured at base just above calyx.

No. 4785. Dalea ~~saundersii~~ fremontii Torr. ~~Parish~~ Three feet high shrub with short thick branches.

No. 4786. Lepidium fremontii Wats. Shoots of the season from stout woody stems a foot high.

No. 4787. Aster abatus Blake These from woody stems 1 ft. high. Asteroideae.

No. 4788. Three feet high, woody shrub.

No. 4789. Baccharis glutinosa Bright lustrous green. Called "Water-Wally" here and at San Bernardino. Also "Water-Woody" here; perhaps the latter name a corruption of "Water Motor"?? In moister places than Arrow-Weed! Mohave River.

Barstow. 2100ft.

No. 4790. Prosopis juliflora = P. glandulosa var. torreyana DC. var. glandulosa Gilde.

Petals 5; stamens 10; calyx cup-shaped with 5-denticulate border; ovary stipitate with long clear curving style. Bushes many-stemmed from base, the foliage mostly concealing the wicked very stout thorns.

(Cont.)

No. 4793. Bluchea sericea, continued. Marginal corollas thread like, with 3 or 4(!) lobed limb; styles purple, slender, smooth. Inner corollas with campanulate throat or at least dilated throat, with anther tube and large thick styles which are minutely roughened. Marginal corollas in about 3 circles; inner corollas in about 3 circles. Pappus

hairs glabrous, dilated and geniculate-crinkly at tips.]

Cont. #4782. Flowers 1 or 2 in a place, in the leafy lateral clusters, in sessile umbels technically. Corolla salverform, pale lavender, 5-lobed. Stamens 5, inserted a little below half-way on tube. Style with a terminal green stigma which is sometimes obscurely 2-lobed. I have found only 1 corolla which had not been insect-punctured on side of tube at top of calyx. Berry covered only at base by calyx! [cf. S. B. Parish in litt. Gipson Corr. 7: 607.]

No. 4791. Atriplex torreyi
The common and abundant white sage of the river bottom
3 to 4½ ft. h.
Woody trunks 2 to 3 ft. h.
No spines. Cattle eat there salt-bushes a little. Its color is white gray. ~~ish or silver white~~

– Mesquite, 18 ft. h.; trunk 18 in. diam. at 6 in. from ground, at 1½ ft. parting into 2 widely spreading limbs. Leaflets linear, glabrous.

– Screw-bean Mesquite – 10 to 18 ft. high. The grove in the Mohave River Bed. Many-stemmed but erect clumps. Leaflets oblong, or elliptic, 4 pair, with a swollen closing or sleep apparatus at base.

No. 4792. Chorizanthe rigida T. & G.
Very spiny procumbent annual. Stamens 9, in a 6-lobed salverform perianth with membranous lobes – Mohave River Bed. Chorizanthe rigida T. & G.

No. 4793. Cleomella obtusifolia Torr. & Frem.
Stamens 6. Petals, 4, oblong, yellow, two upper parallel and approximate, the other two at right angles to them, that is spreading right and left. Ovary long-stipitate
Mohave River Bed. Calyx 5-lobed, the lobes with laciniate appendages.

No. 4794. Coldenia nuttallii Hook.
Corolla pale lavender, regular, with roundish lobes, lobes ~~crus~~ ulate. Stamens 5, low down on tube. Corolla tubular. Style

Barstow. 2100 ft.

2-cleft. Corolla tube below caylx dull yellowish. Mohave river bed. Ascending tranches.

— Anemopsis californica. Very Anemone-like fls. Difficult to distinguish between the different fls. on the spadix. No perianth; 3 styles; (?) 6 to 8 stamens, but one cannot tell to which flower a stamen belongs in field examination.

— Desert Holly = Atriplex hymenelytra. a low plant. Also called Silver Holly.

June 5, 1912.

✓No. 4795. Salix ~~nigra marsh.~~ gooddingii vallicola (Dudley) Buss. Mohave River. Common. up to 50 ft. h. and 1 to 1½ feet in diameter.

✓No. 4796. Ranunculus cymbalaria Pursh. Mohave R.

✓No. 4797. = Spergularia marina var. tenuis (Greene) Rosso. Tissa tenuis Greene. Mohave R.

✓No. 4798. Juncus balticus Willd. Det. W.L.J. Mohave R. "J. mexicanus Willd. probably" — Det. F.V.C.

✓No. 4799. Distichlis ~~maritima~~ spicata (L.) Greene. Mohave R. No. 4799 a. Ditto.

✓No. 4800. Atriplex polycarpa Wats. Dioecious! Bushes with woody stems below, ½ to 1 inch in diam. Mohave R.

✓No. 4801. Palafoxia linearis* annual form? Mohave R. sands.

✓No. 4802. Grass. Mohave R. bed. Sporobolus airoides Torr.

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* Cont. on p. 63

Cloud-Bursts.

— Heavy flood 2 years ago- Jan. 1910, came down the Mojo- Rave. It covered the Waterman Ranch which is on the first bench above the river bed. The water was about 5 ft. deep. The old adobe house at the flat, used by the Waterman mine, melted away. Settlers along the river took the hills. A man at the ranch above swam out through 15 ft. of water with his wife on his back. A rider came down the river warning the people but most of them thought it was a scare.

In July 1911 there was a

cloudburst at the Waterman Ranch. The hills lie in such a way as to throw their drainage right on the ranch. The water was three or 4 ft. deep over the place. Soon the rain stopped. Soon an intolerable stench began from the suffocating fields, — of decaying vegetation, as if the pestilence of it would kill and take everything. But it was soon gone. Such cloudbursts are local & not only local, but as it were, localized. A few miles away, on the other side of Barstow they knew none of it. On the other side that low ridge a few miles away they have their own local storms. The vegetation on the hills is

Barstow } Mohave Desert. 2100 ft

So scant that this fact, the absence of brush, or at least of a covering, is in one way the cause of the phenomenon called cloudburst. Because of the aridity of the land the covering is thin or none, so you work in a circle.

June 6. 1912.

Switch Plants.

- Ephedra nevadensis
- Cassia armata
- Thamnosma montanum
- Parkinsonia torreyana, microphylla

Noxious Forage

- Ephedra nevadensis
- Larrea mexicana
-

Nos. 4804, 4805. See p. 48.

Barstow { Mohave Desert 2100 ft.

No. 4806 Screw Bean Mesquite. Prosopis pubrecens Bth.

Trees and bushes 10 to 18 ft. h. Bark brownish, smooth on the upper branches, on main trunks or stems becoming stringy Double thorns (stipular spines) at every node produced in top of tree out of way of cattle same as any other part. Trunks often 1 ft. in diameter. Usually several stems from base, then 2 or 3 ft. through at ground. Ants do not affect the Mesquite bushes but they do the Cottonwood. The trees cut for wood stumps sprout.

Branches grayish ~~brown or whitish~~ Branches of Common Mesquite - reddish-brown. Stems of former = dark brown, latter greenish brown

Water Finders

- Baccharis
  Water Wally.
- Pluchea sericea (Tessaria borealis)
  Arrow-weed.
- Screwbean Mesquite
  Prosopis pubrecens
- Thamnosa montanum.

Barstow { Mohave Desert. 2100 ft.

No. 4804. Croton californicus *
Stamens, 12, 11, 14, 10, 11, 12, 12, 12, 10, 12, 11, 12, 12, 11, 13.

Stigmas 3, divided into 4 linear, cleft segments

Calyx teeth 5 or 6, unequal.

No. 4805. Lepidospartum squamatum.
Remarkably Cypress-like depressed shrub 2½ ft. h. on sand-dune in Mohave River. , Discarded — LRH in 1965

No. 4806. Prosopis pubescens Benth. see p. 46

* Not appreciably different in fruitescence from plant of S.F. Bay region. 2 ft. h., mostly woody at base.

Spines and Thorns

– Sometimes the branchlets are spinescent and naked. These as in the case of Atriplex confertifolia, no. 4783, result from the persistence and hardening of the flowering branches of the preceding season. Another case of that sort is a member of the Labiatae, namely , no.

Also Frankenia, no.

Barstow 2200 ft.

Common Shrubs on Hills S.W. of Barstow

- Larrea mexicana. This is the commonest species and grows 3 ft. h. mostly.

- Atriplex ~~confertifolia~~ Very common, 12 to 15 in. h. mostly, in river bottom 3 ft. h.

- Franseria dumosa Common, 12 to 15 in. h.

June 7, 1912.

✓ No. 4807. Atriplex hymenelytra 1 to 3 ft. h. the herbaceous stems from thickened and often very gnarled woody stems 1 inch in diameter - Calico Mine.

✓ No. 4808. A. erosa Torr. Asclepias leucophylla Engelm. Fls. pale yellow - 2 ft. h. Calico Mine. c. 2500 ft.

Cont. p. 53.

No. 4809 Eriogonum fasciculatum, var. ~~polifolium~~ polyferum Woody bush 1 to 3 ft. h. Calico Mine.

✓ No. 4810. Grass on desert hills S.W. Barstow. Pleuraphis = Hilaria rigida Thurb.

No. 4811. Atriplex Three ft. h. Mohave R. bed.

✓ No. 4812. Mimulus guttatus DC. Det. A.L.G. Mohave R. bed.

Calico Hills { Mohave Desert. 2500 ft.

No. 4813. Chrysothamnus paniculatus (Gray) Hall
Tall bush with slender woody stems 4–6 ft. h. – Calico Mine

No. 4814.
– Drove behind the blacks with Miss Waterman to Calico Mine in the Calico Hills; the hills so-called because of their variegated colors, reds, browns, slates, grays pinks, and browns. We drove up the cañon to the old mining town of Calico. The main street is still bordered by the walls, mostly adobe or gravel concrete, of the business houses which once flourished there; but the other houses are prac-

} Near Barstow. June 7, 1912.

tically all gone. It was once a great camp. The little graveyard on the slope below speaks a world of pathos.

Cont. from p. 51.
– Asclepias leucophylla, no. 4808 cont. Hoods orbicular-obovate, with rounded entire summit, equalling stylar column; horns consisting of a falcate crest, which exceeds broad the hood and is curved over the summit of the stigma. The horns are not really horns but are, or at least appear (dry) as flat falcate crests.

Calico Wash. {Mohave Desert 2300 ft.

No. 4814. Stephanomeria pauciflora

Plant forming a globose cluster or wide-rough perfect ball 15 to 18 in. high; its stems and branches interturned and interlocked most remarkably. It is quite impossible to extricate a single branch with its branches.

No. 4815. Oenothera brevipes Gray.

No. 4816. Yucca arborescens Trel. → Y. brevifolia Engelm.

In the first valley, over the first summit from Barstow on the road to Coolgardie ~~trail~~ are Tree Yucca. Some fine trees amongst them. Then we run out of them and climb up the

second range*, passing amongst most beautifully colored hills - red, brown, gray, green (a most beautiful green), several little ones all green!, and one of this lavender hills! It was very interesting - and we went on up and came to the summit of the second range where we could see in the northerly distance Telescope Peak of the Funeral Range and, nearer, Pilot Knob. In the other direction Grayback and San Antonio, high in the air with snow. All down the slope of the second valley grew the finest forest of Yucca arbor. I can say, hundreds of fine trees 25-30 ft. h., perhaps 2 to the acre for six miles.

* Calico Range

Coolgardie {Mohave / Desert} near Barstow. June 8. 1912

circa 2600 ft.

No. 4817. Hemizonia

No. 4818. Eriogonum mohavense Wats.

No. 4819. Stephanomeria exigua

No. 4820. Eurotia lanata ~~oides~~. Bushes 15 to 24 in. high. Making white spots in the desert, whiter than anything else and very distinctive.

No. 4821. Grass, in tufts Oryzopsis hymenioides (R.&S.) Ricker
See p. 64.

No. 4822. Baileya multiradiata, flea lemmon-yellow rays. (var. plenivadiata Gov.

No. 4823. Grass. in tufts in desert sand. washes. =Hilaria Pleuraphis rigida

No. 4824. Euphorbia albomarginata S. & G. Involucre with 4 white glands with a purple transverse band at base. White glands so arranged or so spreading as to leave a break or gap on one side the circle.

No. 4825. Salvia columbariae Bth. Desert washes.

No. 4826. Thamnosma montana Torr. & Frem. Shrub, 15 to 18 in. high.

No. 4827. Dysodia cooperi. Curious spotted green plant, Inflated peduncles. (the epidermis nearly all eaten off by insects

Bolgardie { Mohave Desert near Barstow
circa 2600 ft.

No. 4828. Shrub, 12 to 18 in. high.
Haplopappus Cooperi
(Gray) Hall

No. 4829. Hymenoclea salsola T. & G.
Shrub, 3 ft. h.

No. 4830 Aster abatus Blake
Low shrub 12 to 15 in. h.
Rays lavender.

No. 4831. Ephedra nevadensis Wats.
Dull green shrub 2 ft.
high, forming with many
stems a low broad
clump.

No. 4832. Mirabilis Bigeloviii
Barstow, Mohave Desert

No. 4833. Grayia spinosa.
Shrub 15 to 24 in. h.

No. 4834. Acamptopappus sphaero-
cephalus (Harv. & Gray)
Shrub 15 to 24 in. high. Gray

No. 4835. Eriogonum gracillimum
~~viridescens~~
4835 a. Eriogonum viridescens Heller

No. 4836. Eriogonum nidularium
Cov.

No. 4837. Lycium cooperi Gray
Dreadfully spiny shrub 4 ft. h.

No. 4838. Ephedra.
Yellowish shrub 2 to 3 ft. h.
Perhaps same as no. 4831.
No other complement to this
found in the region except
no. 4831.

No. 4839 Stephanomeria exigua
Composite.

Barstow. 2100 ft.

– Dark rich green of the Screw Bean mesquite in the river bed of the Mohave as seen from the first summit on road to Coolgardie is a delight and joy to the eye. It is like the deep green of a band of conifers. (Prosopis pubescens).

No. 4840. Opuntia echinocarpa Engelm. Fls. greenish yellow. Style thick, columnar, with 5 short lobes. About 3 series of obovate petals; stamens, in a band on their base. (numerous,

– Adaptations in desert. The geometric figures of the Cactaceae, the spinescence of Lycium, the reduced glandular leaves of Larrea, – all contribute to the same end, the saving of water.

No. 4841. Bunch-grass. Resource for forage in desert – says Mason. Stipa speciosa.

-Annie the Cook is a good-humored personage who is not at all afraid of professors, having been the cook for the club of bachelors on Mt. Hamilton. She had great fun at my expense, referring to my collections as brush. Why don't you bring me some violets? And then she would laugh and say as my next collection came in: "Them's roses!" in great scorn.

-Larrea mexicana. The ovary is 4-celled. It is by far the most abundant bush on the desert, often seems the only thing. Its deep green hue is really restful over large extents of tilted mesas.

-Palafoxia linearis, no. 4801, cont. from p. 41. Flowering the first season. Palea 4, with very stout midrib and scarious margins, the outer achenes with the alternate palea (i.e. two of them) reduced to very short teeth. [Gray (Syn Fl.) speaks of 2 or 4 additional short palea. But I do not find them in this as in my no. 5275 collected on the Colorado River — W.L.J., Dec. 3, 1912]

No. 4842. Opuntia basilaris
Cactus. Flowers red.

- Black seed grass about
Kramer. Same as no. 4821.

Barstow

Desert Fires.

- In the Sierra Nevada if one is lost he can build a smoke fire and wait for help. But in the desert it is impossible to make a smoke with desert wood, even creosote Bush says Mansar. Desert wood is very hard & dry and makes a fine fire and is splendid for a signal fire at night.

Barstow to Tehachapi 9 June, '12

- Scattered Yuccas, arb. (brevifolia) come in a little east of Kramer and continue on to and about Rich where there is a fine forest of them.
- Fine flowering mesas between Kramer and Rich and at Rich now at this time. Probably splendid in the spring.
- There is a "hotel" at Kramer.

Nos. 4843 to 4858 do not appear to have been used.

- Cantil is a post office and inquiries for stopping place could be addressed there.
- Isomeris arborea, from Tehachapi to Tejon on N. side range; 2½ ft. h.

Bakersfield

– Atriplex, just north of Bakersfield, along the Santa Fe tracks, about 7 to 10 or 15 miles from Bakersfield is a plains area with an extensive pure stand of Atriplex. The species is a shrub species 2 or 3 feet high. It covers 8,000 maybe 15,000 acres. Then we drop this behind and after 5 or 10 miles run into a similar pure stand of Spirostachys. It is also an extensive stand altho not so much of it as in case of the Atriplex.

– Platanus racemosa, none on desert side; comes in the north side Tehachapi range, one of the first trees noted below loop.

– First station below loop, north, is a place where "board" may be had as indicated by a sign; Tamar is the next station.

– Aesculus Californica, in fl. n. side Tehachapi Pass.

– Nicotiana glauca, below Caliente.

– Diplacus longiflorus var. calycinus (Eastw.) Grant. See p. 73, no. 4862. Det. A. L. G.

Berkeley to Porterville, June 25

— Stipleæ, fine collecting ground about Malaga. First station South of Fresno, several species.

— Porterville is a remarkably bustling town which puts on metropolitan airs and has 2 daily papers. Stopped over night here and the next day just before noon took the little mountain train for Springville. At the Springville Hotel there was served one of the vilest dinners imaginable, I was going to say, but the meal was like that in many another place of the size. Hardly a dish fit to look at it, less

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to eat. It was worse than Butte Creek on the way to Big Meadows. Of course the meal cost - 50 cents. One ought for the sake of his stomach to carry figs, raisins, galetta and the like for such emergencies. — Started off up the wagon road for the "Forks of Tule" which I reached about 4:30 P.M. Hiked on to Nelson's which was reached a little before 9 o'clock P.M. Found Glenn Allen in the Sierra Club Outing Party's camp who made me comfortable.

No. 4859. Fremontia californica Torr. Blazes of color on slopes. The shrubs in fine sight now. Saw several tree forms - distinct trunks 6 ft. h., 8 in. diam., 14 ft. high crowns.

Middle Tule R., 2500 ft.

— Torreya californica, trees 20 ft. h. in fruit.

No. 4860. Ceanothus ? leucodermis Greene divaricatus Nutt. Same as coll. on Santa Lucia Peak? Certainly very dif. from C. integerrimus of Sierras and which comes in a few miles above it. It occurs from Tule Forks for four or five miles up East Fork Middle Fork. A shrub 5 to 8 ft. high, with stout rigid branches, thorny branchlets and whitish bark. C. integ. has dingy yellowish brown bark. The old capsule cups shine white inside!

No. 4861. Arctostaphylos viscida Parry. Berries green

but very glandular-sticky! Leaves as a rule small. I saw only this manzanita in the foothills! It formed a rather distinct band in the upper portion of the chaparral belt but also occurred in the lower part as scattering individuals. Shrubs white or whitish (as to foliage.) see p. 69.

No. 4862. Diplacus — Corolla pale (saffron?) yellow, the color very distinct from the deep yellow on coast. Stems not woody.

— No. 4863. Silene californica Durand. Petals crimson, 4-cleft, the two middle lobes larger. Scales 2, crimson. Styles 3, distinct: Ovary stipitate! Fruit on deflexed pedicel. Petals rotate, a little reflexed!

No. 4864. ~~Clarkia~~ dudleyana Abrams. Pale lavender or pale pink petals, truncate, disposed to be notched in center.

Nelson, Middle Tule R.
Tulare Co. 4670 ft.

No. 4865. Brodiaea laxa Wats. = Tritelia
Pale blue fl. Ovary long-stipitate. Inner per. seg. ovoid, obtuse; inner ovate, acutish. Stamens + ovary all declined to lower side of perianth. [Perianth seems to darken in drying.]

No. 4866. Calochortus amoenus Greene
Inner seg. purple, 7 to 8 lines long, with scattered purple hairs, the lunate glands at base red-brown. Gland consisting of 3 horizontal plates with cleft summits which are finely cut or short-laciniate, the whole looking like a compact mossy bank. Outer per. segments dull reddish brown, shorter than the inner - Pine woods.

Noted at Nelson.
- Chamaebatia foliolosa in fl.
- Quercus kelloggii
- Pinus ponderosa.
- Clarkia rhomboidea
- Hosackia (crassifolia) tall thick leaved, dense masses of purplish fls.
- Prunus demissa
- Asarum Chartwegi
- Potentilla nevadensis

No. 4867. Brodiaea ixioides Wats. = Triteleia
Per. saffron? - yellow, color of a rawhide horse, with black midvein bands on back. Staminodia all anther-bearing, alt. long and short, the short with parallel horns, the long with diverging horns. Ovary sub-stipitate.

No. 4868. Ceanothus cuneatus Nutt.

 Nelson, Middle Tule R.

Plants at Nelson 4700 ft.

— Cercocarpus betulaefolius Nutt.

— Yucca whipplei — to at least 4500 ft.

— Rhus diversiloba! 4760 ft

Big Trees, Middle Tule East Fork

Sequoia gigantea came in about 1½ or 2 miles above Nelson's, a few trees in cañon bottom which continue on up up main fork, becoming more common, some fine clusters. No very large trees. Apparently they go straight to saddle, for there appeared to be two on the sky-line. In camp that night a Sierra Club man spoke of this fact. The forest is open and the trees show to advantage. There are many seedlings. I can scarcely guess at the number of trees on East Fork Middle Tule. Say 650 but there might be twice that number (adults).

June 27, 1912.

No. 4869. Mimulus subsecundus var. viscidus (Congdon) Grant: Det: A. L. G.
Herbage sticky-glandular Corolla crimson, lobes essentially alike, or the upper 2 a little larger, white palate with a flare of red lines and dots on it. — Open yellow Pine woods.

No. 4870. Collinsia tinctoria. I mistrusted it was not because of the very short upper lip. Lilac-tinted white flo.

— Mountain Misery. It is one of those names expressive of the daily life and trials and tribulations of the mountaineers, highly expressive of the folk and growing as it were out of the very soil. See p. 80.

S. Fork Middle Tule River. Tulare Co. June 28, 1912

5300 ft.

- Draperia systyla in fl. colonizing matr.

No. 4871. Ceanothus diversifolius Kell.
Fls. pale white. Capsule with ridges running into narrow points at apex. Plants prostrate, with ascending or erect branchlets.

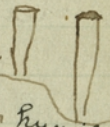
No. 4872. ~~Gilia gilioides (Bth.)~~ Allophyllum divaricatum Small blue fls.

No. 4873 Phacelia frigida Greene.
This is the common Sierra Phacelia of this alt.; same as collected on many trips further north.
See p. 117 seq.

No. 4874. Mimulus mephiticus Greene Whitneyi Gray
Yellow corolla with deep purple or brown-purple spot below each sinus between upper and lower lip. Often other purple dots and typically with a purple line running up out of throat into base of lobe, especially those of lower lip, sometimes a short line on each lobe of upper lip at base. Rather marked folds on palate otherwat
= M. whitneyi Gray.

No. 4875. Gayophytum diffusum T. & G.
Corolla large white, with a narrow yellow ring at base. Style dilated a little at apex and so:

a trifle cup-shaped.
[I never saw this other than white. Turns pink in drying.



No. 4875a Gayophytum humile Juss.
Corolla not exceeding calyx. Stigma remarkably large for the flower, capitate!

= G. pumilum Wats.

Style:

No. 4876. ~~Gilia~~ Allophyllum integrifolium (Brand) A. & V. Grant 6000 ft.
Small white flowers.
– Mountain Misery. Preferred name to Bear Clover. Horses will not eat it. No use as forage. Miserable to walk through. Cannot trail your animals through it. It is of the folk! (Chamaebatia foliolosa) See p. 77.

No. 4877. Gilia gilioides (Bth.)
Fls. pale white

No. 4877a. Muntzelia integrifolia Wats. Lloyd Mdws.
= M. dispersa Wats.

No. 4878. Ceanothus parvifolius Trel.
Fls. blue. Leaves very small. Slender, spreading, 2 to 4 ft. h. See p. 111.

No. 4879. Convolvulus villosus Gray.
Corollas white

No. 4880. R. roezlii Regel, not. Ribes amictum Greene
Round bush, with spreading or horizontally spreading branches. 4 ft. h! Seps. reflexed! in anthesis

– Sequoia gigantea, young growth along East F. Mid-Tule.

– Corn Cabbage. People insist on calling Veratrum californicum Skunk Cabbage. There are four reasons why it shouldn't be called Skunk Cabbage
1st. It has no odor and no self-respecting plant would bear that name without giving out an odor to justify it.
2nd. That name belongs to another species of a different family which smells to high heaven.
3rd. It has a good common name Corn Cabbage which is very happy, the stalks looking more like corn stalks than anything else.
4th. This name Corn Cabbage was given by me!!! ☺

Freeman Creek, 7000 ft. Kern River.

No. 4881. Ceanothus pinetorum Cov.
Procumbent, 6 to 12 in. high; also spreading and ascending, to 4 ft. h!

No. 4882. Cynoglossum occidentale Gray.
Corolla red-brown, scarcely or little exceeding calyx. Crests present, obscurely notched at apex, distinct,

No. 4882a Calochortus nudus Wats.
Mdw. Pets. white, the gland a single appressed scale with a flash of pink or purple above it.

Mimulus moschatus Dougl. var. longiflorus Gray. Det. A.L.G.
No. 4883 Mimulus
Corolla yellow with subequal lobes; its lobes subequal. Rootstocks thickened-tuberous. Dryish places on edge wet mdw.
Herbage glandular-dewy.

No. 4884. Montia sibirica var. heterophylla Rob.
Tuberous rootstocks. Stolons setting offsets. Stamens 5 Style 3-cleft. Pets. notched.

No. 4885. Saxifraga
Wet mdws. Stamens 10.
S. integrifolia Hook. var. sierrae Cov.

No. 4886. Draba stenoloba Ledeb.

No. 4887. Arnica cordifolia Hook. RCB. 1/65

No. 4887a. Mimulus (Lloyd mdw. to Little Lake).

No. 4888. Cryptantha micrantha Jtn. See p. 127. Var. lepida Jtn.
Fls. white. Peculiar ranking of leaves.

No. 4889. Gilia tenuiflora Bth. var. purpusii Mkn.
Granite sandy stretches. Corolla lavender, also pink. Darkens in drying. Throat whitish inside. very common about Lloyd mdws.

No. 4890. See p. 127. Mimulus Whitney
Same as 4869. Forming tapestries on granite sand.

Freeman Ck., June 28, 12.
Kern River.

Big Trees - Freeman Grove

circ.

No. 1. - 61 ft. at 8 ft.
No. 2 - 65 ft. at 10 ft.
No. 3 - 65 ft. at 10 ft.
but not swollen at base. Not less than 195 ft. h and not over 215 ft. h.

No. 4. Fallen tree
235 ft. h.

The Freeman Grove as I mark it on my map ran from near the summit down to or nearly to Lloyd Meadows. They occur rather scatteringly but one comes down to a little flat where there are a great 30 or 40 many of them - a number of large ones

- 3 of them measured above. They continue on down - As to number, say 70 minimum along line of my march - but as many as 130 perhaps - fine young growth in places.

This is a very open forest and the single trees and clusters of Big Trees had a fine show to be seen. They were certainly very beautiful. This is perhaps as fine a forest walk as I have ever made in California. Many people in the Sierra Club expressed themselves similarly

No. 4891. 5700 ft.

— Arctostaphylos patula,* Greene mostly 3 or 4 ft. h. but up to 6 or 8 ft. h. — M. F. K. Freeman, Creek.

— "Anything like that* is called a pea-flower in the South. They call Wistaria pea-flower." — Miss Haskell

* Lupinus sp.

No. 4892. Agoseris sile (discarded, insect damaged)

No. 4893. Asclepias californica Greene. Deep purple fls. Hoods closed from top to bottom but with a continuous slit; not truncate. No horns. Triangular scales projecting over top of stylar column and closely appressed

* Round bush, up to 8 ft h. but mostly 3 or 4. very common through all the

6000 ft. Tulare Co.

upper South Fork Middle Tule in the Pinus ponderosa - White Fir country.

No. 4894. Brodiaea capitata Benth. Dichelostemma pulchellum Fls. very pale when fresh. Lloyd Mdws.

No. 4895. Eriogonum molestum var. davidsonii Fls. whitish with purple or better red-brown midveins. Lloyd Mdws

No. 4896 - Piptocalyx circumscissus Torr. = Cryptantha Lloyd Mdw.

No. 4896a. Eremocarya micrantha Greene var. lepida = Cryptantha Lloyd Mdw.

No. 4897. Mentzelia congesta T. & G. Corolla golden yellow. Lloyd Mdw.

No. 4898. Delphinium patens Benth. Fls: lavender - white. Lloyd M

No. 4899. Cryptanthe Lloyd Mdws.

5700 ft. 6000 ft.

No. 4900. Zygadenus venenosus Wats. White pets. with short claw and yellow untoothed gland. Near Lloyd Mdws.

No. 4901. Velaea parishii C. & R. Lloyd Mdws.

No. 4902. Gilia inyoensis Jen. ~~campanulata Gray.~~ Fls. white; stamens on base of tube, unequal. Lloyd Mdws. = ~~Gilia breviuscula Jepson.~~

No. 4903. Linanthus nudatus ~~Gilia brevicula (Gray).~~ Fls. white. Lloyd Mdws. = ~~Linanthus breviculus var. nashianus Jepson & Hoover.~~

No. 4904. Mentzelia albicaulis Dougl. Lloyd Mdws.

No. 4905. Spotted involucre. Lloyd Mdws.

4905a — Agoseris retrorsa

No. 4906 Sidalcea ~~spicata~~ Greene. = S. raptans Greene. Corolla pink-red. Trout Mdws.

No. 4907. Lotus oblongifolius Greene var. ~~Torrey~~ nevadensis Ottley. Banner yellow; keel & wings white. Lloyd Mdws.

Tularia ↑ near Deep Creek.

No. 4908. Phacelia mohavensis Gray. Dwarf. On rock pile just above Ford of Little Kern. Corolla pale purple with a broad white center, Style deeply 2-cleft, it & fils. very minutely puberulent below.

No. 4909. Mimulus guttatus DC. var. microphyllus (Benth.) Grant. Det: A.L.G. Corolla deep egg-yellow, its palate very strong, hairy, usually with a strong brown purple spot in center, & also dotted. — Little Kern R. = M. guttatus DC. det. W.L.J.

No. 4910. Scutellaria ~~angus~~ ~~tifolia Parish~~ austinae Corolla blue; middle lobe lower lip with upturned edge. Throat hairy a little on lower side. Upper pair filaments adnate higher than lower pair, the style lying between these closely

near Deep Creek, 6000 ft.

parralel structures which weave a web of hairs across & close over the style to hold it in place Little Kern R.

No. 4911. Nama rothrockii Gray. Corolla blue-purple, 6 or 7 lobes, 6 or 7 stamens Styles 2, distinct, hairy below a little - Little Kern R.

No. 4912. Cynoglossum occidentale Gray. Little Kern R.

No. 4913. Cirsium coulteri Carduus 3 ft. h. Little Kern R.

No. 4914. Collinsia tinctoria Hartw. Pink-red flowers. Little Kern R.

No. 4915. Umbellifer. Little Kern R. Eulophus bolanderi C & R.

No. 4916. Purshia tridentata DC. Broad rounded shrub 3 ft. h. Counts

of stamens: 23! 20! 18! Near Front Mdw.

No. 4917. Frasera tubulosa Cov. Petals pale white with blush veins. Stamens 4, with 4 alternating linear tubular scales laciniate at apex. oblong-glands

No. 4918. Potentilla glandulosa Lindl. var. nabeya Japan. Pets. small, ovoid, yellow; stamens about 20. - Little Kern R.

No. 4919. Trichostemma oblongum Bth. Little Kern River near Front Mdw.

No. 4920. Pensteman palmeri Gray. Pink; tube short. throat very large! Tip of style sterile fil. long - yellow - hairy. Anthers on upper side throat in pairs. Style lying alongside of lower lip. Abundantly floriferous, very showy! Fils glaberous - Kern River near Little Lake.

Kern River 6500 ft.
near Little Lake.

No. 4921. Lotus*
woody crown. Kern River June 29.
No. 4922. Garrya flavescens Wats.
Shrub 5 ft. h. Kern R. June 29.
No. 4923. Senecio canus Hook. June 29.
No. 4924. Brasenia schreberi Gmel. peltata. Little Lake
No. 4925. Ranunculus aquitilis var. hispidulus 6200 ft
Forming great beds in Kern R.
No. 4926. Datisca glomerata B. + W.
Female fls: carpels 4 or 5, each 2 long styles; 2, 3, 4 stamens.
Staminate fls: 11 to 17 stamens.
No. 4927. Potentilla
Stamens so. Pets. obovate, retuse.
Cf 4928a if lost

* Flowers yellow; banner rounded, longer than the equal wings and keel. Wings with strongly developed processes on wings which are shortly recurved.

Lightning Struck Tree
Sugar Pine (Pinus lambertiana).

	ft.	in
Top piece	88	6
Stump	10	6
Piece under end of top (38 in. diam.)	23	0
" following (36 in. diam.)	20	0
" 25 ft from stump	24	0
Minimum height =	155	6
Probable height - -	175	
Diam. at 4 ft =	4	6

Fragments 6 in to 1 ft. long thrown as far as 144 ft.
Fragment of trunk 20 ft. long + 2 ft. wide thrown 30 ft.
The effect was tremendously explosive in the lower middle portion of the tree which was blown out, as if by dynamite, releasing the upper portion weighing 50 tons which came straight

down into the ground, driving the column about 4 ft into the ground, the high crown then toppled over, having pieces of its rim stuck in or buried in the ground. When this top piece fell over its end was lifted off the ground by a log fragment of the lower portion of the trunk lying on the ground which reached the ground first. This lower portion was badly broken longitudinally & transversely. Two of its fragments 12 feet long were driven into the ground diagonally or slanting about 2 or 3 feet (at least) A characteristic feature was

the number of short blocks of wood scattered about. The lightning struck 8 ft. from top of crown, as at least the skinned trunk began there, a line of bark being blown off, the line following the trunk down so as to make a complete spiral to the point where the top portion of crown was intact. High voltage runs along the surface of things but, evidently is erratic since it must have run to centre below and blew the trunk apart just as the thin line of bark was blown off above. The amperage may have been different, below, for some reason. A tree 175 ft. hi

July 1, 1912

stands alongside the lightning struck tree. It is Yellow Pine*
– Snow Plant. Not seen near snow this trip! Is it perennial? Could not get ready to flower in one year, but does it flower more than once?

Tulare Co. Golden Trout Creek, July 2, 1912.

No. 4928. Stellaria longipes Goldie. Stamens 10. Pets. deeply divided, white. Golden Trout Ck

✓ No. 4928 a. Allium campanulatum Nats 8000 ft

✓ No. 4929. Nama rothrockii Gray. Flower parts 5, also 6 & 7. Tends to form colonies. – 8000 ft Golden Trout Creek

* The streak down the Sugar Pine trunk is clean of bark, 4 to 6 in. wide and with the wood finely splintered at intervals. cf. "Lightning-struck tree in Kern Cañon" (Sierra Club Bulletin, 9:25) by W. L. Jepson.

Kern Lake 6233 ft. Kern Cañon

Plants observed.

- Prunus emarginata
- Quercus californica
- Libocedrus decurrens
- Pinus ponderosa and var jeffreyi
- Populus trichocarpa
- Lotus nevadensis, very common
- Arctostaphylos patula. Stone with unsets cohering into a solid stone.

✓ No. 4930 Astragalus Kernensis Jepson. Sides of banner turned sharply backward and thus narrow. Wings narrow-tubular through being convolute, shorter than banner; keel shorter than wings. Wings turning bluish. Flowers whitish. – Golden Trout Ck. Pods splotched with red. – 8200 ft. New species!

✓ No. 4931. Castilleia breweri Fer. Tips bracts & calyx crimson. Teeth Corolla exserted from

calyx. Visited by humming birds!

No. 4932. Montia chamissoi Dur. & Jac. Fleshy. Petals white. Stamens 5. anthers pink. Styles 3., markedly hispidulose under a lens!

— Manzanitas grow in desert places? asked Blichenfeldt. In arid places said I. Is the Madrona related to the manzanita? First cousin, I replied. But the Madrona does not grow in arid places, he said.

No. 4933. Thalictrum fendleri Engelm. Flowers perfect. Stamens roughly estimated at 15 or 20.

(M. ciliata var. stomatechoides Jepson.)

No. 4934. Mertensia sibirica Don. Fls. white or blue. Stamens with dilated fils. & versatile anthers, inserted at summit of tube. Throat & lobes about as

near mt. Whitney July 2, 1912. Tulare Co.

long as tube. Fls. white in this specimen. Short yellow-tipped crests alternating with stamens.

No. 4935. Actaea rubra var. arguta Hulp. Pets. oval, on slender claws as long as blade, white

No. 4936. Polemonium occidentale Greene. = P. caeruleum L. ssp. amygdalinum (Wherry) Munz. Stamens with bright yellow anthers. Corolla blue, its tube very hairy at insertion of stamens, fils. otherwise glabrous along streams. Style often much exserted.

No. 4937. Collomia linearis Nutt. Corolla pink. Stamens unequally inserted in tube & very short.

No. 4938. Potentilla campestris Jepson. = Ivesia. 4-merous. Pets pale yellow, obovate, on claw nearly as long as blade. Stamens about 15. (P. utahensis var. campestris Jones).

Golden Trout Ck., 8500 ft.

No. 4939. Potentilla gracilis ssp. Nuttallii (Lehm.) Wortsch. Petals broad-rounded, retuse at apex, deep yellow; stamens 20. [P. stenuentosa Rydb. acc. S. F. Crum]. = P. gracilis Dougl. var. Hallii Wolf. (W. & G.)

No. 4940. Carex rostrata Stokes. Det. K.K.M. Little Lake, Kern R.

No. 4941. Mertensia ciliata var. stomatechioides Coyote Ck., Miss Haskell.

No. 4942. Sisymbrium pinnatum Greene = Descurainia pinnata Golden Trout Creek = Volcano Creek.

No. 4943. Eardamine Breweri Wats. Kern Canon, Kern Lake.

No. 4944. Senecio

No. 4945. Sisymbrium incisum Engelm. = Descurainia richardsonii ssp incisa Golden Trout Ck. Golden Trout Cr

No. 4946. Barbarea vulgaris R. Br. var. arcuata Koch. (= B. orthoceras var. dolichocarpa Wor.) Golden Trout Ck.

No. 4947. Fern. Volcanic crater side.

No. 4948. Oenothera whitneyi [↑ see p. 101.] Petals white, notched or really obcordate, with

near Mt. Whitney

July 3, 1912 Tulare Co.

the mid vein so turned up or obversely carinate, that is carinate on upper surface so the petals are not plane and makes a flower very different from any of the other Oenotheras while as yellow-flowered species. The flowers open most freely, perhaps only, at 5 o'clock some of the flowers remaining open all next day. They turn yellow after anthesis and finally pink-red! being with closed or half-closed petals after the white stage. — Granite sand flats, 8900 ft., Groundhog Meadow. O. xylocarpa Cov.

No. 4949. Potentilla wheeleri Wats. Petals 5, yellow, notched. Stamens about 15. Sandy flats.

No. 4950. Potentilla Stamens about 15. Petals rounded abruptly narrowed at base to a.

slight claw, retuse or truncate
Sand flats. No. 4950a. See p. 127.

No. 4951. =Ivesia Potentilla campestris Jepson.
Petals rounded-obovate, narrowed to a distinct narrow claw, obtuse, stamens 18 or 20. Sand flats. See no. 4938.

No. 4952. Hulsea vestita Gray.
Rays deep yellow. Sand hillside at "The Tunnel" Golden Trout Ck. 9000 ft.

No. 4953. Abronia alpina Brandegee
Perianth pink; lobes 5, deeply obcordate or divergently notched; stamens 5, very unequally inserted on tube. — Ramshaw Mdws., S. Fork Kern, — Miss Mary Haskell, near Kern Peak. 8600 ft.

No. 4954. Oreonana clementis Jepson.
Umbellifera. Same loc. as preced. Mary Haskell.

No. 4955. ~~Collomia~~ Microsteris gracilis (Hook.) Greene. The same loc. as preced.

near Mt. Whitney July 3, 1912. Tulare Co 103

No. 4956.
Composite. Same loc. as preced.

No. 4957. Nummulus ~~Stamineus Grant.~~ nanus coccineus Det. A.L.G.
Deeply bi-lobed; upper lip deeply 2-lobed; corolla crimson; deeply 3-lobed lower lip; yellow throat, extending out on folds of lower lip.
Same loc. as preced. 8600 ft.

No. 4958. Arabis inamoena Greene.
Crucifer. Same loc. as preced.

No. 4959. Stellaria longipes Goldie.
Pets deeply bifid, white. Stamens 10; styles 3. Herbage green.
Long meadow.

No. 4960. Trifolium longipes Nutt.
Long Meadow.

No. 4961. Stellaria longipes var. laeta
Pets deeply bifid; stamens 10; styles 3. I am unable to see

Long Meadow, Golden (= 8500 ft.)

any difference between this and no. 4959 except that this is glaucous! Yet they look unlike and I thought to find them distinct. — Long Mdw.

— Pinus flexilis, about and on craters, Groundhog Meadows. Also Pinus balfouriana. 9000 ft.

— Gilia aggregata — Kern Peak

— Sambucus racemosa — the white = fl. Sierra shrub.

Olancha Peak Side Trip

— A party hiked out to Olancha Peak and the neighborhood of Carthage Creek on July 6. Myself, Mrs Haskell Plantrides the Greek; Kavanagh & Earle to fish. Turned down into Ramshaw Notes from "The Tunnel" and over a point of

hill to the meadows surrounding Templeton Mt., which is a round or basket-crowned mountain without connecting spurs to the main ridges or mountains on any side, and covered with Tamrac Pine and a little Jeffrey Pine and Juniper. We went out south of the mt., skirting its southern flanks, went east a little way on the Gomez Mdw Trail and at the S.E. base of the mt. lunched at 12 o'clock, six hours from the start. Then on around Templeton into the meadows on the north of it and by a short-cut over the low rock-piles into Ramshaw and back to camp at 6:45. The low flats about Templeton, especially north, contain many hundreds or thousands of acres. The water has recently gone off, a new vegetation is springing up and one spear will cover several sections.

Ramshaw Meadows.

Tulare Co. 8600 ft.

No. 4962. Lewisia nevadensis. (Gray) Rob.

No.	Sepals.	Petals	Stamens	Styles
1.	2	6	9	5-
2.	2	7	8	5-
3.	2	7	9	5-
4.	2	5-	10	5-
5.	2	6	8	5-
6.	2	6	10	4
7.	2	8	11	4

Flowers white - Ramshaw Mdws [I do not recall that the petals were unequal*, or especially or markedly so - Aug. 18, 1912] * Syn. Fl.

Description does not refer at all to the fact that there are many scapes nor their height.

Notice the heading of the sect. in Bot. Cal. "scapes shorter than leaves".

No. 4963. Oenothera subacaulis. Jepson

Type of O. ovata exactly in habit & general appearance. Fls. with a trifle shorter petals. Leaves some of them with 2 or 3 pair of supplementary lobes at base. O. heterantha Nutt.

No. 4964. Allocarya hispidula Greene. with pieced.

No. 4965. Mimulus

Crimson. Deeply divided sparingly lobed. Palate densely short hairy with definite straight blunt-tipped hairs.

Sand

No. 4966. Umbellifer.

Sand fields. Ramshaw Mdws. Oreonana californica Jepson. = O. clementis Jepson.

No. 4967. Antennaria

Perfectly flat on ground Both sexes.

Templeton Peak, Mdws. about it. Tulare Co. 8600 ft.

No. 4968 Mimulus deflexus Wats. Det. A.L.G.
Most remarkable dwarf. Upper lip crimson (sometimes yellow). Each lobe cleft. Lower lip yellow, recurved, deeply 3-lobed, each lobe cleft. Palate dotted, short hairy (densely) with hairs of equal length. – Templeton Mt.

No. 4969. ~~Gilia~~ oblanceolata (Eastw). Brand.
Corolla white with yellowish throat, its lobes quadrate, emarginate. = Linanthus oblanceolatus ~~Greene~~ Eastw.

No. 4970 Hesperochiron californicus Watr.
Corolla white, deeply 5-lobed, lobes broader above, obtuse, its tube a little hairy at base. Stamens 5, inserted on base of tube, unequal in length. Style 2-cleft. – Covers thousands of acres of flats about Templeton Mt.

July 5, 1912.

No. 4971. Sand Verbena. Abronia ~~alpina~~ ok. ~~villosa~~ Brandegee.
Flo. pink, red pink & white. lavender, rarely
Lobes of Corolla divergently 2-lobed.

No. 4972. Senecio integerrimus Nutt. var. exaltatus (Nutt.) Cong.
Low sides of Mdws, Templeton Mt.

No. 4973. Peucedanum Parishii C&R.
Flats about Templeton Mt., sometimes the dominant plant in a 100 acres.

No. 4974. Ranunculus cymbalaria Pursh.
Flat on ground in Mds about Templeton Mt.; runners. Fls. yellow. Wet flats.

No. 4975. Ranunculus alismaefolius var. alismellus
Erect. Same loc. as preced.

Kern Cañon 6500 ft.
Tulare Co.

No. 4976. Collinsia Correyi Gray. Often very dwarf as to flower, also with upper lip short and pale. — Templeton Indus 8500 ft

No. 4977. Viola purpurea Kell. var. grisea Jepson. Templeton Indus. Fls. yellow, veined petals, Leaves remarkably crenulate - undulate. Abundant. crenulate - toothed. 8500 ft

No. 4978. Mimulus ~~bigelovii Gray~~ Whitneyi Gray Det. A.L.G. Fls. crimson, yellow throat to corolla; north-eastern slope Templeton Int. 8800 ft.

No. 4979. Sisyrinchium bellum Kern Cañon bed. Perianth Mate. Blue, its segments broadening upward, truncate or retuse, with a short-subulate point in the notch.

July 6, 1912.

No. 4980. Mimulus moschatus Dougl. var. longiflorus Gray. Det. A.L.G. dry ground or at least not wet or moist meadow place.* Corolla semiregular, its lobes broad, broader than long, all notched. Corolla pale yellow. Underground rootstock tuberous. Throat half-closed by palate. Stamens anthers midway tube but perhaps not developed.

— Ceanothus, no. 4878, parvifolius Trel. with small glabrous green leaves and blue flowers collected at head S.F. Mid. Tule, recurs here, abundant on flattish talus bench of Kern Cañon bed, 2 or 3 miles above Tower Rock. Stems many from base, spreading so as to form a broad shrub 4 or 5 ft. h. and 8 to 12 ft. broad.

— Arctostaphylos patula Greene from Kern Lake to the tops of the cliffs above Kern Cañon, scattered amongst open Jeffrey Pine.

* Kern Cañon, near Tower Rock.

Kern Canon — 6500 ft
Tulare Co.

No 4981. Fritillaria pinetorum Davidson
Kern Peak, Miss Mary Hackell

No. 4982.
Sierra Puffball
Long Meadow. 8500 ft

No. 4983. Castilleja brevis Gr.
Kern Canon; near Lower Funston Mdw.

No. 4984. Senecio canus Hook
Kern Canon; near Lower Funston Mdw.

No. 4985. Helenium Hoopesii Gray
Rays very long, golden-yellow
Lower Funston Midst.

No. 4986. Pentstemon heterodoxus
Gray. Lamel Mt., Kern Canon.

- Pinus monophylla, on sides cliffs Lwr part Big Arroyo.
- Cornus californica in fl. forming thickets in bds Big arroyo and all similar mountain torrents.
- Cymopterus terebinthinus, Turpentine Parsley, very abundant in Big Arroyo.
- Kern Canon bottom has the following trees:
  - Populus trichocarpa, abundant
  - Abies concolor "
  - Pinus jeffreyi "
  - Juniperus ~~nevadensis~~ occidentalis "

all the above are associated in Kern Canon bottom at mouth of Big Arroyo and always south and south as far as Kern Lake.

Kern Cañon 6500 ft.

- Reverend Willard O. Thorp preached on rather held services on Sunday. There was singing of well-known hymns a violin piece by Mr. & Mrs. Wright. the Lords Prayer, reading from Isaiah. He then took as a sermon a verse about the trees and gave a very sympathetic account of the tree, its struggles, its handicaps. its record within itself as we have a record within ourself of our past, etc, applying the history of the tree to teach a lesson to man himself. He finished with a poem of Sidney Lanier: "In to the woods my master went"

- Pinus murrayana, - a tree 40 ft. h. stands on top of a great flat square block of granite 14 ft h. in the bottom of Big Arroyo, a little east of Soda Ck. It presents a remarkable sight as one view it going down the cañon. When one gets to other side, it is seen that the roots have penetrated to ground through a cleft.

Tulare Co

No. 4987. Lupinus breweri Gray. Procumbent, mat-like colonies Flowers blue, the large white spot on the banner turning deep purple - Big Arroyo, Kern Cañon.

No. 4988. Grass. Oryzopsis hymenoides (R. + S.) Ricker Big Arroyo. 7200 ft

No. 4989. Eriogonum saxatile Big Arroyo.

No. 4990. Erigeron breweri Gray Big Arroyo.

No. 4991. Ribes cereum Dougl. with delightfully fragrant and very overpowering odor

No. 4992. Salix monica Head of Lost Creek. S. eastwoodiae acc. Schn. 10,100 ft.

(Nos. 4992 a + b.)

Chaenactis Plateau

Tulare Co.

Big Arroyo.

- Populus trichocarpa
- Populus tremuloides
- Castanopsis sempervirens
- Pteris aquilina
- Pinus jeffreyi

No. 4993. Artemisia
Head of Last Creek
Subalpine 10,100 ft. July 9

- Juniperus nevadensis, 65 ft. h. 4 ft. through at base, with. much perfect full crowns.

Chaenactis Plateau.

No. 4994 Potentilla flabellifolia v Hook.
Pet. roundish, deeply notched, golden. Head of Last Creek
Alpine. 10,200 ft.

No. 4995. Ranunculus oxynotus Gray
Last Ck. Alpine, in streamlet.
Yellow fls. 10,300 ft.

No. 4996. Salix ~~glauca var villosa~~ crassijulis Schn
And. Alpine. Head of Last Ck.
10,100 ft. July 9.

Position of Pine Cones

- Jeffrey Pine - 2d year old cones (now maturing) borne on end of last branchlets, the bud of last autumn now starting to make a shoot for this season

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- Cont. from p. 78. no. 4873. This I now determine as Phacelia patula (Brand), a form of P. magellanica, and ally it with the "patula" plants of coastal S. Cal. Undoubtedly it passes into or appears to pass into var. frigida.

Chagoopa Plateau
Lost Creek, Columbine Lake.

No. 4997. Arenaria congesta Nutt. var. suffrutescens Rob. July 9, 1912
Lost Ck.

No. 4998. Draba Lemmoni Wats.
Crucifer. Fl. yellow.

Columbine Lake in granite clefts. Very beautiful on the granite sand. See p. 124.

— Went down into the Big Arroyo and climbed up other side on ~~left~~ right-hand side of Lost Creek which enters Big Arroyo stream 100 yds from mouth of Soda Ck. On up into Lost Creek Canon through the timber, walled by high peaks, into a high treeless glacial valley, — arctic like — with a stream in its meadow, — willows along it and especially salix monica! Over a 500 foot ridge to Columbine Lake. This is the Sawtooth (see p. 124) Range we are now in.

Fox-tail Pines

— Large-sized trees on sw side Mt. Kaweah, 25 to 30 ft. h. 1 to 3 ft. diam, short but rather full-headed, with their heads all turned one way — N.E., indicating the prevailing wind. Avalanch of snow rocks has torn a lane 50 ft wide through this forest of rather full-sized trees which are practically at timber line, allow 100 to 200 ft above they flatten down & become prostrate. Avalanch 1/4 mile long lane. Wonderfully made and completely done. What a gouge for an avalanch to plough out a hole of this size in a fairly dense forest.

Kaweah Peaks

No. 4999. Arenaria nuttallii var. gracilis
Petals white, ovd, acuminate.
Stamens 10. Mat-like with ascending stems. 2 or 3 in. high.
Kaweah Peaks

No. 5000 Lewisia nevadensis (gray) Rob.
No. 1. - Styles 6; petals 6; stamens 6
No. 2. - Styles 5; " 6; " 8
Kaweah Peaks base in mdw.
11,000 ft

No. 5001. =Sibbaldia Potentilla procumbens (L.)
matted, glaucous. Petals yellow, shorter than the sepals, elliptic, acute. Stamens 5 or 6! 11,000 ft
= P. sibbaldi Hal.

July 11, 1912.

Tulare Co.

No. 5002. Pentstemon confertus Dougl. Fls pale blue. 2 parallel upper lobes to corolla; 3 somewhat divergent spreading lower lobes. Stamens 4, glabrous. Style one, glabrous; stigma 1. Palate with a little hairiness. Calyx glandular-hairy; its lobes distinct.
Chipmunks eat the roots!
Kaweah Peaks mdws. 12000 feet.

No. 5003. Stellaria borealis Bigel.
Petals white, deeply bifid, 4 or 5. Sepals 4 or 5. Stamens 8 or 10. Bed of streamlet. Styles 3.
Kaweah Peaks mdws.
12,000 ft.

No. 5004. Antennaria
Kaweah Peaks Mdws.
11,000 ft

No. 5005. Castilleia culbertsonii Greene.
Meadow Paint Brush. Always in wet mdws. Fls. pink purple or crimson. Calyx crimson

cont. p. 122

Moraine Lake

— Ray of North Fork Tule says: "I have seen only three trees struck by lightning. The tree at Kern Lake (cf. supra, p. 93) a Sugar Pine tree at Dillonwood Mill, three miles of Visalia; and a large Valley Oak tree in the valley near Visalia." Ray could give me no explanation of why fire did not start on these trees. Fire generally starts, he says, and at the base of the tree or trunk.

Patterson, Forest Supervisor, of the Sequoia National Forest, gave me some facts about the proportion of fires in his forest due to lightning, in 1911. These figures I can secure from him again.

— Climbed Kaweah Peak yesterday. Huge angular blocks to climb over. Laborious but not in the least difficult. Fine view of the Whitney Range, Williamson, Junction Peak, Ericsson, Table Mt. Also Mt. Goddard. Also saw well the Merced Group, Lyell, Ritter, & Banner.

Little vegetation on the mt., at least at this time. Primula suffrutescens was in flower. I noted only one or two other species.

— Wm Ray says: The meadow at base we always called Sky Meadow; a much better name than Chagoopa Plateau.

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deeply cleft before & behind, the segments deeply notched, the 2 main segments spreading laterally to expose short galea which is little longer than deep-purple narrow sepals

bags of lower lip. — Perennial.

Chagoopa Plateau

(Sky Mdw.) 9100 ft

Columbine Lake.

This is one of the most beautiful and wonderful lakes in the Sierras It is very unique. Set in a bowl of mountains which rise it above, it is as if it were high up under the sky, with the tooth of sawtooth towering above it on the south side. The water is very deep very blue. Snow-birds, Leucosticta, were hopping about on the snow picking up insects, with a curious rapid hop. There was no vegetation; and no forest, being above timber line. Only a few plants of no. 4998 which glorified the granite ledges on which a little sand had accumulated.

- Populus trichocarpa - at 8500 ft. on Chagoopah Plateau, i.e. on sides a little way below top. The narrow or lanceolate leaves represent

= L. confertus Kell.

No. 5006. Lupinus torreyi Gray.

Blue flowers. Large quadrate white spot in banner which fades in age into the general color scheme but with a touch of reddish-brown. Keel ciliate

No. 5007. Phacelia frigida Greene.

Fls pale lavender. Stamens long-exserted, pilose at middle. Style 2-cleft to middle, glabrous. Stamens showing white as exserted against the ground of the corolla.

No. 5008. Eriogonum spergulinum var. spergulinum

Fls white Segments pink-mid-veined. Stamens 9 Segments crenulate at apex.

- 8500 ft. alt.

a juvenile state. One notices them on young trees and young shoots of older trees.

Tulare Co.

Upper Kern Cañon

7800 ft.

No. 5009. Hemizonella
Flowers all discoid, 4 in an involucre of 4 bracts, several involucres closely collected so as to resemble one head. — Near Junction Mdw.

— bastanopsis sempervirens — 3 - to 4 ft. h. Numerous ascending or curving stems
— bercocarpus ledifolius — several shrubs 5 to 6 ft. h.
opp. Whitney Ck.
No. 5009a. Near Junction Mdw.

No. 5010. Potentilla gordoni Greene (var. pygmaea Jepson) = Ivesia pymaea Gray
Chagoopa Plateau, Upper Funston Mdw (Sky-parlor Mdw). 9100 ft.

No. 5011. Trifolium monanthum Gray.
Dense flat mossy mats.
Chagoopa Plateau, Upper Funston Mdw. 9100 ft.

No. 5012. Delphinium (parishii var. inopinum Jepson) ~~andersonii~~ Gray
Flowers dull white. Kern Cañon

No. 5013. Arnica
Rays yellow. Kern Cañon.

No. 5014. Grass. Sitanion californicum. = S. Hystrix (Nutt.) J. G. Smith
Kern Cañon, upper.

No. 5015. Grass. Sitanion californicum = S. Hystrix
Kern Cañon, upper.

No. 5016. Grass (Melica stricta).
Upper Kern Cañon. A very beautiful species with nodding spikelets.

Cont. from p. 83. No. 4887a. Mimulus tilingi Regel var. corallinus (Greene) Grant. Det. A. L. G. No. 4890 = M. ~~fremontii~~ Whitneyi Gray. ~~Det. A. L. G.~~

Cont. from p. 100. Potentilla diversifolia Lehm. var. glaucophylla Lehm. No. 4950a.

No. 5017. Sisyrinchium californicum Ait. Fls. yellow. Segments 5½ lines long, elliptic. Stamens joined into a tube about half-way, then free, the 3 style-branches divergent. Segments distinct, entire, obtusish. [The segments of the blue-flowered one which grows with this are only 4 lines long.] Wet marshy place on hillside at Junction Mdw. 8500 ft. alt.

No. 5017A. Gentiana ~~serrata~~ var. holopetala (Gray) Holm. with preced. — Mountain Balm," a shrub between Nelson's & Springville, dark green shining above as if varnished, 1 inch wide, 4 or 5 times as long, long and narrow, common. You chew a bit of it and it gives your mouth such a cool feeling, says Mr. Hubbs

5 acc. Miss Mary Haskell. Hubbs is the liveryman at Springville, an intelligent man. The leaf is gray beneath, and very rough. = Eriodictyon glutinosum !!! acc. Purdy. T.G.W.

No. 5018. Silene menziesii Hook. Caryophyll. Fls. white, small. Petals narrow-fanshaped, deeply notched so as to give the appearance of diverging lobes. Styles 3. Stamens ? 8. Flowers 3½ to 4 ~~(about)~~ lines broad.

— Pyrus sambucifolia, — Kern Kaweah R.

— Sierra Primrose — Kern-Kaweah Cañon, delightfully fragrant.

— Acer glabrum — 14 ft. h., several straggling crooked stems — Kern-Kaw.

Kern-Kaweah River 8400 to 9000 ft.

3000 ft. cliff N.W. of Camp-

Species on its face.

- Juniperus occidentalis! No. 1.
- Cercocarpus ledifolius! No. 2
-
-
- Kalmia polifolia - in fl - Kern-Kaweah River

- No. 5019. Jamesia americana var. californica (Sm.) Jepson (014) Cliffs. Stamens 10! Carpels 3 Petals pink-red. Filaments dilated. Cliffs of the Kern-Kaweah.
- No. 5020. Thalictrum fendleri Engelm. Junction Meadows. Flower clusters Sepals white.
- No. 5021. Ceanothus velutinus 4-5 ft. h. many stems from base. - Kern-Kaweah R.
- No. 5022. Senecio fremontii var. occidentalis Gray Kern-Kaweah River
- No. 5023. Heuchera rubescens Torr. var. pringlei Jepson ↑ Kern-Kaweah R. in rocks of Man. = var. nevadensis Jepson of Fl. Cal.
- No. 5024. Arnica Junction Meadows.
- No. 5025. Pyrola minor L. Junction Meadows

see p. 135.

Upper Kern River.

Shrubs on Talus, Upper Kern* Canon

- Arctostaphylos patula. This forms the greater part of the covering. It spots the talus with low dark green spots with the white granite as a ground.
- Ceanothus velutinus, Dougl. This plays a minor part. It is not rare, however.
- Castanopsis sempervirens. Plays a minor part at this alt.
- Ceanothus pinetarum Cov. Prostrate or Procumbent, 1 ft h. Minor part at this alt.
- Prunus emarginata, a little here

* Alt. beginning at 8300 ft.

No. 5026. Senecio pauciflorus Pursh.

Looks different from any other species collected this trip; which may be due to the deep red-brown color of the disk in bud. Rays yellow, 5 to 13. - Upper Kern River in rocks.

[Rays 4, 4, 4, 6, 6, 7. - Apr. '25]

No. 5027. Potentilla breweri Wats. var. viridis Jepson.

Inner edge of disk reddish & hairy. Stamens 20! Petals golden, broadly obcordate, as broad as long! Leaves silky. Stems procumbent! or ascending. - Upper Kern R. in rocks.

- Mitella breweri, in fl.! in shade Tamarac Pines

Upper Kern.

- Manzanitas -
Nile Purdy speaks of 3 species:
1. A. viscida, small stick berry turning red-brown
2. A. manzanita

— An amusing illustration of translation of highbrow English into Pigeon English: I left Junction Camp, went straight up Kern towards Harrison Pass. At lunch place, willows parted + Toy the Chinese Asst Cook, came thru and seated himself close by me on the log as if for protection. I told him he must go back, get on right trail, and join Tyndall Creek party. He was sore reluctant but finally said: "You write paper". I wrote out directions for him to show any one he met, beginning: This almond-eyed son of the Celestial Empire etc at great length. Toy went down the cañon + met Miss Lane (who would not speak slang even). I did not see Toy until Whitney Creek camp when he came to me and told his adventures: What did Miss Lane say? said I to Toy. Toy replied: She take paper. She read paper long time. Then she say: My God! I'm lost. I come five mile out my way. God damn." Then I went to Miss Lane and, asking her about it, described Toy's recital. Tableaux!

- No. 5028. Potentilla glandulosa Lindl. var. lactea Greene.
Petals white, orbicular, entire
Stamens 25! Upper Kern R.
Also seen ~~colle~~ 1000 feet higher near Milestone Mt.
Alt. 10,500 ft.

- Pyrola minor, no. 5025, Corolla white, tinged with pink. Petals orbicular, concavish. Sepals dull red-brown, triangular, acute. Stamens 10; filaments apically attached; anther-cells opening by pores. People in camp compared the racemes to Lily-of-the-Valley.

Squirrels & Coniferous Seed.

– Sequoia gigantea. Says Will Purdy: "Last year there was such a great crop of White Fir cones that the squirrels did not bother the Big Tree cones. I found one year two sacks of Big Tree seed in a hoard of the squirrels. The hoard lay between two logs and was evidently a gathering place or temporary storage place. The squirrels hoard the Yellow Pine cones in a moist place to prevent their opening! They hoard Sugar Pine seeds but not the cones, probably because the cones are too large."

Patterson tells of a gray squirrel that tried to back up a Digger Pine tree with a Digger Pine

cone! The beast cut the cone from a near-by tree and tried to take it up another tree. This feat was in presence of a number of people at the Hot Springs Hotel. The cone must have weighed four or five times his own weight. Will Purdy told of someone's experience with a gray squirrel that had cut a Sugar Pine cone down. The person took the cone and the squirrel was furious with indignation!

- Eriodictyon glutinosum - the dried leaf is smoked in the foothills below here and is also mixed with smoking tobacco. Also chewed separately.

- Snow-Avalanches.

In upper Kern the snow avalanches has knocked over the Tamrac Pine and Foxtail Pines in a remarkable manner. The west walls mostly furnish the avalanches. When they come down they slumt over the slanting or low talus of the opposite side throwing the trees up-hill! I noticed a young pine probably buried to 6 ft in snow with its 7 ft. top turned over so as to stand horizontally, the bend very sharply right-angled but not broken!

- Will Purdy says: - Lightning may often strike a tree without setting fire. It may set fire to the needles on the ground about a tree without injuring the tree which it came down. He speaks of a Sugar Pine which showed a remarkable spiral sheath down the tree and did not set fire.

- Juniperus occidentalis, - the ♂ trees are yellowish, not merely with pollen-sacs but also as to the whole tree; the ♀ trees are deep green as to both foliage and flowers

= Ivesia pymaea Gray

No. 5029. Potentilla gordoni Greene var. pygmaea.
alt. 11,500 ft. near Harrison Pass.
Stamens 10 on a disk, the outer portion pale yellow, the inner portion of it not stamen-bearing and deep yellow.
Petals cuneate-obovate, usually abruptly acute, rotately spreading

No. 5030. Sedum rhodiola DC ~~Scop.~~
Fls. dark red purple; in clefts granite.
Stamens 8, those opposite the petals have their filaments covered at base by an oblong-quadrate gland. Alt. 11,000 ft.
= Rhodiola rosea L. var. integrifolia Jepson.

No. 5031. Dodecatheon jeffreyi Moore.
Petals large, pink rather than red, shading or tending to shade into white at base.-
Head of Kern River cañon. = Var. redolens Hall.

Tulare Co

- Ranunculus gardens at head of Kern River at 10000 to 11000 feet. As we worked up over the granite to Harrison Pass, we came into this high treeless region with the granite ridges and desolate peaks everywhere present to the eye. But here and there on a granite outcrop would be a little garden of Ranunculus alismellus, its golden flowers showing splendidly against the white granite. Also on moister drains where there was granite sand were fine clumps of the deep golden flowers of no. 5033 Ranunculus (same as no. 4995), the petals of which so soon turn dull white or pale. These spots were a great delight for they furnish the only color on these heights.

– I have been stopping for a couple of days at the camp of the U.S. Forest Service men in the Kern Cañon about 5 mi. above Junction Meadow. Supervisor Allan Patterson, Ranger Bill Purdy, Ranger Clingan. We went today up the Kern to the great network of lakes at its source at 10200 feet. We had fine views of Milestone, Table and Thunder Mountains. Also Generva Mt. and Ericson Mt. Generva is a fine Conical mt. on the divide to the Kings. Ericson is a splendid tall crag lying in the gap with Harrison Pass on its right of it looking from the high Kern Lakes. Then

we pulled around to a divide which overlooked the headwaters of Tundra* and Tyndall creeks and a fine view of Mt. Whitney on the N-side. We can see from here the route on Whitney's summit. Looking north of westerly one has a fair view of Mt. Brewer and through the Harrison gap a view of Elkhorn Peak. At this point and below the Ranunculus flora was fine. See p. 141. We dropped down to the plateau of Tundra Creek and walked over a long nearly level plateau, finally dropping to a lower valley and then breaking down through the cañon of Tundra Ck. and finally out over the talus to the bottom of the Kern Cañon.

* First creek on east side Kern River above Tyndall Creek

Harrison Pass, Sierra Nevada 12,000 ft.

– Kalmia polifolia, on Tundra Ck. in fl.

– Ribes montigenum at 10,500 feet on the upper Kern near Harrison Pass., in fl!

No. 5032. Crucifer. Streptanthus gracilis Eastw. Fls. lavender-purple. Head of Kern Cañon. On rocky walls.

No. 5033. Ranunculus. oxynotus Gray. 10,000 ft. alt. Fls. deep golden yellow, but soon becoming dull or dull white. Also at 11,000 ft. – Milestone Ck. Also occurring in beautiful spots in pass between upper Kern & Tundra Creek.

No. 5034. Erigeron ~~pere grinus~~ (Pursh) Greene ssp. callianthemus (Greene) Crong. Head of Kern R. 9800 ft.

No. 5035. Carex cxserta Mackenzie. Det. K.K.M. Carex filifolia Nutt. var. Erostrata Det. K.K.M. Kükenn. "Short Hair Grass" forming the grassy plots amongst the granite at high alt. It has

NE Tulare Co.

a characteristic aspect, the snow having shortly gone off it. It is fine sheep feed, – the sheep feed in these high places. It characteristically forms the little crater-like growths, a tuft spreading & dying out in center, the granite finally sand being too "thin" to support one vegetation long – 10,000 to 12,000 ft. See p. 148

No. 5036. Umbellifer. Oreonana clementis Jepson. Granite sand, 12,000 ft. near Harrison Pass.

No. 5037. Salix arctica near Harrison Pass, 12,000 ft.

No. 5038. Polemonium ~~confertum~~ ~~Gray~~ Near Harrison Pass 12,000 ft. ~~[illegible]~~ eximium (Greene) ~~Jepson~~ Also a pure white albino!

No. 5039. Carex Helleri Mackenzie Det. K.K.M. near Harrison Pass, 12,000 ft.

No. 5040. ~~Draba~~ breweri Wats. Fls. white. Near Harrison Pass 12,000 ft. alt. ~~[illegible]~~

Upper Kern Cañon wall, east side.

No. 5041. Rediculariş attollens Gray. Fls. pale pink. Kern River near mouth of Tyndall Creek.

No. 5042. Juniperus occidentalis. ♂ + ♀ flowers. Kern River just above Junction meadow 8300 ft.

No. 5043. Phoradendron juniperinum Engelm. On Juniperus occidentalis. 8300 ft.

No. 5044. Dodecatheon Jeffreyi Moore. Petals pink, the base white or whitish, with a broad yellow zone, edged underneath by a purple edging. — Side wall Kern Cañon 10,000 ft., in meadowlet. Var. radolens Hall.

No. 5045. Dodecatheon Jeffreyi Moore. Petals purple, whitish at base, without purple edging to the yellow zone. — In the same meadowlet

Tulare Co.

as preceding but forming a separate colony. = Var. redolens Hall!

- Pinus Balfouriana — cones to 5½ inches long! Whitney Plateau near East Fork Kern River.

No. 5046. Dodecatheon alpinum Greene. Color scheme as in no. 5044. Petals lighter purple than in no. 5045. East Fork, mdw. (Kern River)

No. 5047. = Ivesia lycopodioides ssp. megapetala Potentilla gordonii Greene. Petals yellow, orbicular, short-clawed. Stamens 5. East Fork, mdw. = Var. megalopetala Jepson. (Kern River) Geyer var. alsinellus Greene.

No. 5048. Ranunculus alismaefolius. The characteristic alpine species. 10,500 ft.

[No. 5035. Cont. Also forms the short velvety covering on the broad mesas or flat on Tundra Creek. It is like a great skin of a fur-bearing animal spread over the country.

No. 5049. Lupinus confertus Kell. Fls. white but with pinkish ~~Keel~~ wings; Keel upper portion ciliate. Probably sub-albino of some species. — Mr. Rennie who coll. it on East fork of East Fork Kaweah regarded it as exceptional.

— Pinus Balfouriana, weeping tree; the branchlets have continued to grow without branching instead of becoming limbs; they are 1 to 2 feet long; the upper (lower morphologically) portion has shed its leaves and these

branchlets shine white above the terminal fox's tail. I noted another such tree near "The Tunnel", South Fork Kern. I think they are not uncommon.

— Pinus Balfouriana. The dominant species on the Whitney Bench from East Fork Kern to Rock Creek. Between East Fork Kern and Whitney Ck. it is mixed a little with Tamarac Pine altho considerable areas are pure. South of Whitney Ck. the forest is pure Fox-tail for some distance.

— Tree of Pinus Balfouriana on southern side, Sand mdw. = at 4 ft = 17 ft. 3 in. circ; at ground 23 ft. 4 in. circ. Height = 60 ft.

Crabtree Mdw to Rock Ck. 9600 ft. July 20, 1912. Tulare Co.

10,300 ft.

No. 5050. Lewisia pygmaea Rob.

	Petals	Stamen	Styles
No. 1.	8	6	4
No. 2	8	6	4
No. 3.	7	6	3
No. 4.	9.	6	4
No. 5.	8	6	5

Anthers versatile, dark purple. Corolla white, some of its petals often notched on one side or at apex. Sepals glandular-denticulate. Mt. Guyot. Miss Mary Haskell.

No. 5051. Salix monica Bebb.

Mt. Whitney, on Whitney Ck.

= S. eastwoodiae acc. Schn.

No. 5052. ~~Erigeron~~ Aster Andersonii Gray

Guyot Ck. Rays lavender + whitish. Wet mdws

Carex heteroneura W. Boott. Det. K.K.M. 10,500 ft.

No. 5053. Sedge. Carex quadrifida Bailey

Guyot Ck.

No. 5054. Sedge Carex

Guyot Ck.

No. 5055. Draba Lemmoni Wats.

Mt. Guyot. Miss Mary Haskell.

No. 5056. Grass (Stipa occidentalis).

Rock Ck.

No. 5057. Mimulus stamineus Grant. Det. A.L.G.

Corolla crimson, the lobes broadly subquadrate, the lower 3 spreading, the upper 2 recurving. Yellow on palatal ridges, bordered dark purple. — Granite sand + gravel slope near stream — Rock Ck.

No. 5058. M. montioides Gray. (W.B.J.) Mimulus deflexus Wats. Det. A.L.G.

Yellow corolla. Lower lip with 3 horizontally spreading lobes, each deeply notched, the notch rather broad; upper lobes erect, recurving so as bring their backs towards each other, narrowly notched. Palate with short erect distinct hairs scattered over its surface —

Rock Ck. 9600 ft.
(near Mt. Whitney). Tulare Co.

Rock Ck - moist, gravelly place
sand

No. 5059. Arabis ~~Tamoena Greene~~ pygmaea Rolly
with preceding.

No. 5059a. Arabis Lyallii Wats. (= A. drummondii Gray.)

No. 5060. ~~Arenaria~~ Nuttallii var. gracilis
Petals white, oblong, acutish at each end, entire. broadly Styles 3. Sepals lanceolate, conduplicate - subulate at tip, longer than the petals. Stamens 10. - Rock Ck.

No. 5061. Aquilegia formosa var. truncata F. & M.
Rock Ck.
Fls. red, the spurs with yellow tops
10,000 ft.

No. 5062. Ranunculus oxynotus
Fls. yellow. Army Pass. 600 Gray ft. below summit.

No. 5063. Erysimum asperum var. perenne Wats. = E. perene
Army Pass.

- Army Pass. This pass is at 12000 ft. Approached from the west by the trail along Rock Creek the ascent is very gradual until the last 800 feet when there is fairly easy zig-zag to a broad summit of the pass 3/4 mile across to the sudden break off eastward to the Cottonwood Lakes. The desert is almost entirely shut off by side ranges of the Sierra spurs but the view westward is better. One has an excellent view of the Sawtooth Range which forms the western rim of the Chagoopa Plateau. Also Mt. Florence at its southerly end. Kaweah Peaks show up well. Kaweah Peak is seen to stand up from the middle of the

Army Pass 12,500 ft.
Tulare Co. (Mt. Whitney)

plateau with the Sawtooth Range west of it.

- Ribes cereum, at 12000 feet about Harrison Pass. From 10,500 to 11,000 feet in this region."
- Ribes montigenum is up at 11,000 feet in this region. These are the two high species.

No. 5064. Eriogonum ovalifolium Nutt. var. nivale (Canby) M.E. Jones)
Army Pass.

No. 5065. Compositae Agoseris alpestris
Army Pass.

No. 5066. Erigeron compositus var. glabratus Macoun.
Cottonwood Lakes, 11,700 ft.

No. 5067. Carex straminiformis Bailey
Cottonwood Lakes, 11,700 ft.

- Pinus balfouriana, about
Cottonwood Lakes.

July 22, 1912

- The Sierra Club pack train got into the pass about 3 or 4 o'clock. Most of the Club members had been waiting in the pass since 11 o'clock a.m. in order to help the train down the eastern slope. The eastern slope breaks off into cliffs in character of the eastern wall of the Sierras. The time was spent in making a trail through the snow wide enough for the pack-mule. The work was done with tin-cups, jack-knives, one spade came at last, and my botanical pick was used to cut through a layer of ice. Most of us finally went on below and then watched the "strings" of mules come through. From below looking up at that cliff it did not seem possible there was any place for a goat. The trail follows along a ledge and finally gets a chance to zig-zag on talus.

Cottonwood Creek (Fresno Co.)

E. side Sierras

No. 5068. Mimulus deflexus Wats. Det. A.L.G.
Exactly same as 5058 but upper lip commonly purple or rather crimson. — 10,500 ft.

No. 5069. =Navarretia Gilia breweri Gray.
Flowers yellow. Corolla subsalverform. Stamens almost exserted, — 10,000 ft
= Navarretia breweri Greene.

No. 5070. Mimulus suksdorfii Gray. Det: A.L.G.
Depauperate, All the lobes notched. Yellow corolla, somewhat spreading lower lips. Palate dotted — 10,000 ft

No. 5071. Polygonum kelloggii Greene
10,000 ft. Coville. Det: A.L.G.

No. 5072. Mimulus breweri (Greene))
Pink corolla. Throat open; the lobes transversely oblong. The upper obscurely retuse
10,000 ft.

July 23. 1912

Pine Forest, Eastern Slope, Sierra Nevada.

The timberline tree is Pinus balfouriana; mixed with it is Pinus murrayana about the Cottonwood lakes, with the former predominating to a point 2 miles below Cottonwood Lakes (say at Antoni Camp, 10,500 ft.) and occurs three miles further on (by trail down Cottonwood Creek) as long as Pinus murrayana makes a fairly dense stand over the country. Then comes in the Pinus flexilis with its foliage much more fragrant than Pinus balfouriana and its bark white instead of red. The forest band is thus a broad and rather dense one; and is in marked contrast to the descent of the Eastern slope

of the Sierra Nevada in Bloody Cañon. We meet Artemisia tridentata in abundance, its aromatic foliage giving a welcome to the entrance to the desert.

=Ivesia santolinoides Gray
Potentilla santolinoides Greene.

No. 5073. Stellariopsis
Cottonwood Creek. – 9,000 ft.

No. 5074. Arenaria congesta Nutt. 9000 ft.

No. 5075. Montia chamissoi Dur. & Jac.
Corolla. Petals and stamens uniformly 5 and styles 3. Moist stream bank. Tubers developing at end of runners. – 9000 ft.

Tilingi Regel var. corallinus (Greene) Grant: Det. A.L.G.

No. 5076. Mimulus. On moist stream bank where it gets spray of streamlet. Lower lip very large, the palate broad, prominent, filling throat, short-hairy. Middle lobe very large, & broad, notched strongly. Lateral lobes about ½ as large as middle, entire. Lobes upper lip at first erect, obliquely and shallowly notched, then turning backward and towards each other back to back and recurving finally, so the upper lip is no longer prominent. Corolla yellow, without or essentially without dots. – 8500 ft.

No. 5077. Pinus balfouriana Grev. & Balf. Jeffrey
Branchlets mostly drooping so as to give a characteristic aspect to tree. Cones purple. Branchlets not strongly fragrant. Runs as far down canon as point of rocks on Cottonwood Ck., further than indicated above. – 8500 ft.
By old saw mill in Cottonwood Cañon.

No. 5078. Pinus flexilis James
Branchlets not drooping. Cones green. Branchlets strongly fragrant. – 8500 ft. with preced.

No. 5079. Arabis Lemmoni Wats. Timosea Peak, sides
8500 ft.

Cottonwood Ck. to Owens Lake. July 23, 1912

near Timosea Peak, Inyo Co. 8500 ft.

- Cercocarpus ledifolius - very abundant on north slope, i.e. north of stream of Cottonwood Ck. 5 ft. up to small trees probably 15 ft. h. - 8500 ft.

No. 5080. Cercocarpus ledifolius Nutt. 8600 Timosea Pk.

- Mountain Mahogany (Cercocarpus ledifolius) - tree on little plateau above little Cottonwood Creek and at westerly end of Timosea Peak; 7 ft. 8 in circ at ground, forking at 3 ft.; one limb 3 ft 3 in. circ, another limb 3 ft. 7 in.

Height = 13 ft. - 9 in. - Miss Haskell.
Breadth of crown = 33 ft!!

A fine individual. Part of a forest of it on a little plateau behind the peaks above referred to.

- Cercocarpus parvifolius - the dominant and perhaps the only scrub which covers the mtn. * See p. 167.

walls of the Sierras which go abruptly down to the desert level. It is prominent enough to give the effect of a coniferous stand.

- Foxtail Pine, Pinus balfouriana, at 8500 ft! as low as

- No. 5081. Chamaebatiaria millefolium Maxim. Timosea Peak [Lower 2 or 2½ ft. h. as I remember.]

- Artostaphylos patula Greene. associated with Cercocarpus ledifolius at 8800 ft above and also down to at least 7000 ft.

- Pinus monophylla - trees on slopes of Timosea Peak, at 8000 feet, 45 ft. h. + down. The young trees 5 to 15 ft. h. are amazingly thick-foliaged. You can not see into them at all.

- Quercus chrysolepis, shrubs + small trees associated with those preceding, 5 to 25 ft. h.

No. 5082. Eriogonum latens Jepson n. sp.
Timosea Peak. 8500 ft.

Cottonwood Creek, near Tinosea Peak. July 23, 1912.

Inyo Co.

No. 5083. Galium

The Slide on Timosea Peak. 8000 ft.

No. 5084. Penstemon Palmeri Gray

2 to 3 ft. h. Corolla lavender inside, dull white outside. Lobes lower lip very long, deeply parted, parallel, entire as the erect upper. Style (brown-woolly. Sterile stamens). Style glabrous Very handsome species. On rock-slide. Sides of Timosea Peak, 8000 feet = the slide on Timosea Peak.

Abies concolor, in Cottonwood Creek in bottom at 6600 ft. Associated with Pinus ponderosa & Quercus chrysolepis down to 6200 ft. Also Betula fontanalis and Populus trichocarpa. The stream species in the bed of the stream, the others within 20 to 40 feet.

No. 5085. Ulota parishii C.H.K.

Cottonwood Creek. 7500 ft.

No. 5086. Rhamnus californica Esch. var. viridula Jepson. Cottonwood Creek. 7500 ft.

No. 5087. Pentstemon breviflorus Lindl.

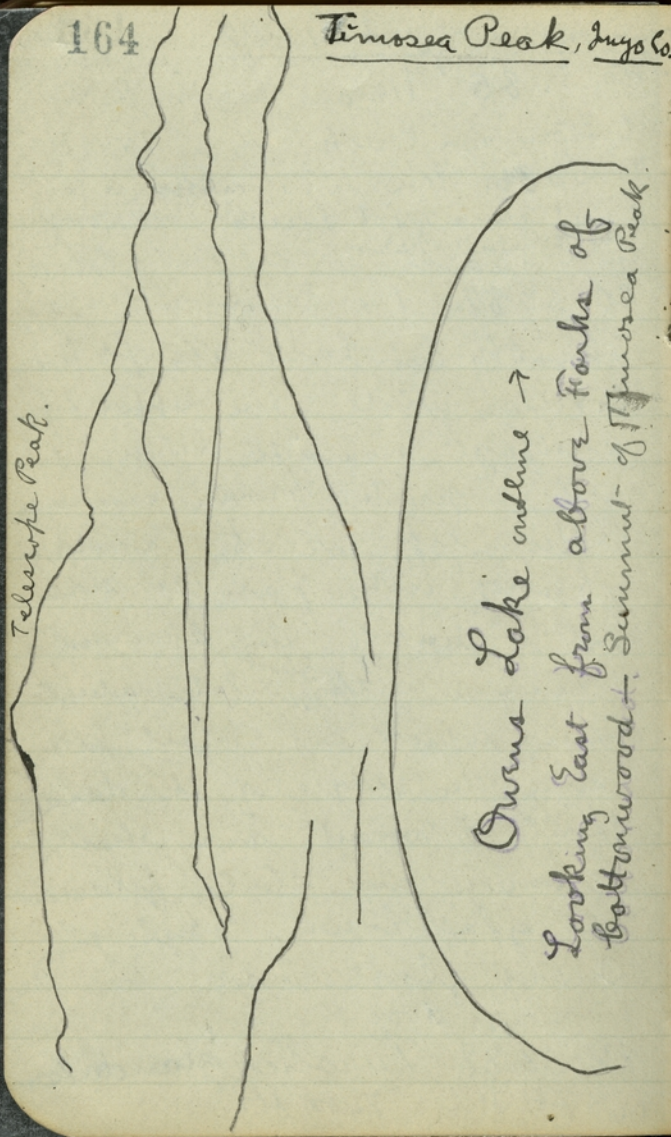
Shrubby at base 1½ ft. h. Corolla white, the upper lip pink at summit. Lower lip with pink-brown veinings. Upper lip erect, broadly oblong with parallel sides and a notch in summit. Stamens with short dilated aduate bases which are short pubescent along the edges of the dilation. Sterile filament very short. Stamens and sterile filament all glabrous. Style glabrous. Ovary glabrous.

5000 ft.

No. 5088. Purshia glandulosa Curran

4 to 5 ft. h. 7000 ft.

Timosea Peak, Inyo Co.



Looking due R. East the farthest range is a high one with a dominant peak*. Between it and Owens Lake is a series of low gaps, the successive ridges in this low gap rising into 3 high parallel ranges. Away below south is a high ridge with a single medium high shoulder. To the left the Inyo Range runs abruptly from Owens Lake into a high wall. The second farthest or next farthest range east has three high equal peaks in the middle of it.

* Telescope Peak of the Panamint Range.

No. 5088 a. Pinus monophylla. Saw several fine trees on slopes of Timosea Peak. Regret that I did not have time to measure them.

Cottonwood Creek to Owen's Lake. July 24, 1912

- Inyo Co. - 23 July. 5000 ft

No. 5089. Castilleia linariaefolia Bth.

No. 5090. Quercus chrysolepis

No. 5091. = Eriastrum Gilia densifolia Bth. Woody at base. Corolla blue. = Hugelia densifolia Bth.

- Peterson, W.O., Div. Engineer, Los Angeles Aqueduct System. Fine young fellow, about 30, who has nearly 1000 men under him. He has not merely the engineering but the entire construction, equipment, maintenance and supply, except feeding the gangs. The latter could be better done by the city also, he thinks. See p. 184.

- Atriplex Torreyi Wats, no. 5146.

♀ fls = styles 2.

♂ fls. = stamens 4 or 3.

See p. 194,

- Cercocarpus. See bottom p. 160. No! not pure! Mixed with One-leaf Piñon.

Owen's River Valley.

- All about Owen's Lake one sees the old-time beaches, the more recent ones indicating its high level 30 or 50 years ago, the geologically ancient ones higher up. The water-worn stones, kidney-shaped, from rocking are found in the old beaches, says Peterson and thus differ from the rounded stones of river beds which are turned over torn. Lone Pine is a delightful oasis in the dreary waste of sage brush. As we walked towards Lone Pine from Cottonwood a high wind was at our backs which alleviated the temperature and helped to carry us forward. After traveling through the soft sand of the sage brush I was mightily pleased to run into a series of moist alkaline areas surrounding small lake beds just before entering the wooded groves of Lone Pine, the stretches of the dark green crowns* of the Cottonwood relieved by irregular groups or short lines of Lombardy poplars. The farms on the outskirts of the village were delightful. They were so primitive and yet had so comfortable and restful a look. The low house buried beneath foliage and surrounded

* correct Silva + Trees Cal

by grapevine-covered pergolas or porches. Camp Independence is a singularly delightful spot- with its row of trees bordering the double roadways and shutting out the sun above and the glaring desert from beyond. It was wonderfully cool to run into the shady lanes out of the desert. They were so cool that they seemed like refrigerators, doublers by contrast.

I took a look at "My Neighbor's Field" which lies just beyond the Austin cottage at the end of the street. Below Ash Creek there is a wooded tree spot along side Owens Lake which is the scene of the Basket-makers story of Mary Austin. The blackwares in their baskets are said by Peterson to be had by burning red materials in the black mud at the foot of Carbage Ck which debauches out that point.

- Black Locust - see p. 185. The telegraph poles referred to p 185 often present a curious appearance on account of their crookedness - they march across the plain in a drunken crazy manner, as if they were tipsy. The linemen humorously say that these poles are so crooked that when going up a pole they often meet themselves coming down!

- Grayia polygaloides, Lone Pine
- Pinus monophylla, band on slope of Sierra Nevada; a very marked zone of it as seen from Lone Pine.

- Larrea mexicana, comes in at southern end of Owens Lake.

- Mt. Whitney Hotel kept by Anton an old-timer here, is a remarkable country hotel. Nothing is at all fine or elaborate, but the beds are clean; the linen was changed on my bed every day altho' it was known that I was staying on. The table is remarkably good, excellent for certain things: milk most excellent & in quantity; good butter; very excellent honey ad lib.; good steaks & chops. So the fare is very welcome to one in the hot parched burning desert.

- At the Lone Pine Hotel there was seated at one of the dining tables a woman with a remarkably young, mobile and expressive face, especially when she talked. But her body was very large and she was very tall. Her features were small & well molded and her head was fairly small. She seemed out of sort with the usual desert people, and

it soon developed that she was a Mrs. Mowrer on Maui, a million-heiress in her own right. She had a child with her and had just returned from Los Angeles getting a divorce. She resides at Bishop. The true desert types seem rugged and healthy and good-looking; but those who have been transported here lately to work for the railroad or the aqueduct look wan and heat-stricken. I don't know whether the heat seizes the women more than the men or not, but my attention was called to the women more.

– On the trip to Olancha (see p. 184) we called at the Walker Ranch. The house is shaded by tall Cottonwoods which also form a fine line on the roadway in front of the house. Walker is 80 years old but apologized for not being with his men in the field that day as he was a little unwell!! He told stories of old days in Inyo and the Indians.

– Fraxinus (velutina Nutt.), no. 5130. There was a-plenty of this along Ash Creek on the desert-level about Owens Lake. The trees formed a thin grove along the creek and down to the lake edge, where at the mouth of the creek there were a large number of them. The trees were round-headed and mature as to age. I did not measure any, the automobile stopping only a moment, but as I remember now they were 12 to 16 feet high and with trunks 4 to 10 inches diam. and 4 to 6 feet high. – Aug. 23, 1912. This species is F. coriacea acc. to Merriam, Shrubs Death Valley, p. 319. No. 5130a. Fraxinus coriacea watz.

Owen's Lake

3700 ft. alt.

No. 5092. Ornothera (Onagra) alyssoides H. + A. var. decorticans Jepson. 5 to 18 in. h. Petals white, ovate with rounded apex and very broadly cuneate base. — Cottonwood Creek, common.

No. 5093. Petalonyx thurberi Gray. Flowers greenish-white. Style long exserted, arising from a tubular-funnelform 5-parted white corolla-like structure. Around this are 5 long slender filaments of the stamens surpassing the corolla*-like structure and inserted at the summit of the inferior ovary which bears 5 slender woolly lobes shorter than the corolla*-like structure. There are two short bracklets at base of the ovary set in the axil of a bract. Woody plants 1 to 2 or

Inyo Co. July 24, 1912.

3 ft. high. Plants often 5 to 7 ft. broad! Common. at Cottonwood Lake.

* Really corolla, the claws — commonly in a quite remarkable way!!

No. 5094. centaurium exaltum w. wight. ~~Erythraea exaltata~~ Very slender. Corolla pale pink with oblong lobes. Stigmas 2, Elliptic or sub-roundish, side by side. Stamens as long as stigma

No. 5095. Sesuvium ~~sessile Pers.~~ verrucosum Raf. Stamens many, red. Sepals 5, fleshy green, or pinkish inside! ~~below~~. Styles 2 or 3, distinct. Ovary superior. Prostrate or ascending. Plants found later with better flowers. Sepals always bright rose-pink inside. Very pretty.

No. 5096. Clomella breviflora Wats. Perianth yellow very small, 4-merous. Pets. distinct, obovate, 3/4 line long. Stamens 4/6! Ovary superior; one short style; stigma one, capitate. — Owens Lake.

Owens Lake 3700 ft.

shore, wet place. Notice the lake shore flies which infest the terminal branches. Flies = Ephydra hiatus Say. = "Kootsaba", an Indian food.

No. 5097. Nitrophila occidentalis
Perianth pink. Five segments. Stamens 5. Style 2-cleft. Ovary superior. Stems from a rootstock! fleshy

No. 5098. Cardylanthus
Sepals of about equal length, the lower entire, the upper notched or bifid. Upper & lower lips corolla equal. Lower lip broad. Stamens 2, glabrous. Style dilated a little toward tip. clavate sparingly short-pilose below. Lower lip 3 to 4 lines broad, faintly veined with pink. Corolla white. Bracts not colored. Corolla

tube very narrow Lower half, broadly dilated above.

No. 5099. Cleomella obtusifolia T. & F. Capparidaceae.
Stamens 6, 4 long, 2 short, long-exserted. 4 yellow oblong acute petals turned to one side, the upper side the flower. Style and ovary as long as the short stamens, long-exserted; stigma capitate one. — Noxious pervading odor. = Cleomella obtusifolia Torr. & Frem.

No. 5100. Gilia = Langloisia Matthewsii (Gray) Greene matthewsii Gray
Upper lip one linear lobe; lower lip, 3 lobes, the middle one deeply cleft so that each part resembles the narrow or lateral lobes. Stamens 5, linear long-exserted; style one. Pale lavender corolla with

— cont. p. 177 —

Owens Lake 3700 ft. Inyo Co.

Blue of Owens Lake.

– Owens Lake looked very blue from Timoshea Peak yesterday. Today we are walking along it – towards Lone Pine – Farquahar, Putnam of Boston, Eliot of Portland, Phoutrides of Greece have gone on ahead to Lone Pine where we shall all eat dinner together at 7½. Miss Haskell of Boston walks with me because she wants to learn about the desert flora. We constantly remark the blue of the lake "It might be the Mediterranean about Naples" etc. After a while the wind comes up and blows hard and the white caps are seen for miles over the lake. The lake is now indigo blue!

– Two days after I saw the lake again under a mellow sky and it was a dull dirty hot color – all its enchanting blue gone!

– Cont. from p. 175 –

faint marking on lobes; sometimes 3 lobes lower lip and 2 upper? But wind blowing such a gale as to obscure position of filmy lobes; making it impossible to diagnose correctly or accurately.

Det: A.L.G.

No. 5101. Mimulus. (Benth.) Greene. (Primetanthe pilosa)

Corolla subregular; yellow of the lighter, but not pale, order. A purple dot, marked, between each sinus of upper & lower lip. Calyx soft-pubescent, nearly as long as corolla-tube.

No. 5102. Oenothera grandiflora. = O. hookeri T. & G.

One of numerous long branches from a central stem, forming a roundish plant – 2 or 3 ft. h. Closing at sunrise. Stream banks.

Owens Lake, 3700 ft.

No. 5103. Coldenia nuttallii v Hook.

No. 5104. Atriplex polycarpa Round bush 3½ ft. h. The old flowering branches become dead and spiny. – Small fruited.

No. 5105. Atriplex canescens. Ranging in size from 1 to 5 ft. h. The bushes are rounded, the young ones 1½ ft. h. remarkably so and give a very characteristic aspect to the desert levels where they grow. The young ones are especially heavy with fruit and their crown is without a break. – 4-winged fruit! Heavy fruits. 5105a, an undeveloped or narrow fruited form, was collected with the typical form. Atriplex canescens

July 24, 1912

No. 5106. Psathyrotes ramosissima annua (Torr.) Gray Gray. Characteristic annual composite of these desert floors.

No. 5107. Chrysothamnus nauseosus (Pall.) Britt. var.? Composite 4 to 6 ft. h. Branches or rather main stems long and slender, many from a central crown, the brown-like branches slender pale sage-greenish-gotten Leaves very greenish – Bush of characteristic color. The old stems form a barrier at the ground.

No. 5108. Senecio douglasii var. monoensis (Greene) Jeps. There stems from short woody bases.

– Salix nigra – Owens Valley.

No. 5109. Stephanomeria pauciflora. Leaflets char. desert type Comp. 1 to 2 ft. h. Rounded in outline and intricately branched.

Owens Lake. 3700 ft.

No. 5110. Stanleya pinnata.
Plant 2 to 3½ ft. h., there branches from stout woody bases 4 to 6 inches high.
stem Of Capparidaceous. aspect.

No. 5111. Artemisia tridentata ssp. tridentata
Broad bush 2 – 5 ft. h. sometimes arborescent with trunk 3 in. diam.

No. 5112. Castilleia spiralis
= C. minor Gray !!

No. 5113. Berula erecta Cov.
Annual white-fl. Umbelliferous.

No. 5114. Ranunculus cymbalaria Pursh
Flowers with a very high achene crown, the stamens in a close zone around base.

No. 5115. Scirpus americanus Pers.
Owens Lake shore

No. 5116. Juncus balticus Willd. group Det. F.V.C.
Owens Lake shore

July 24, 1912

No. 5117. Eleocharis rostellata Torr.
Owens Lake shore.

No. 5118. Eriogonum reniforme.
annual.

No. 5119. Franseria dumosa Gray ex Torr.
One ft. h. & broad.

No. 5120. Atriplex phyllostegia
Annual.

No. 5121. Astragalus, ~~coulteri~~ lentiginosus var. fremontii ~~Bth.~~
Perennial; stems taken near ground

No. 5122. Suaeda ~~moquini~~ torreyana var. ramosissima
Stamens & hooded sepals 5. Stems & old dead stems bases witch-broomy on a woody trunk 6 or 7 in. h. and 1 inch thick. – Lone Pine

No. 5123. Sarcobatus vermiculatus
Round intricately branched thorny bush 5 ft. h. The male spikes are borne in the

end of short hard rigid leafy branchlets. The next year this branch and branchlets, or after a few years, becomes a dead very thorny cluster of branchlets. The leaves are fleshy, flat above, rounded beneath. The shrubs are very compact but scrubby & ragged & thorny.

No. 5124. Salix. exigua Nutt. Seems in appearance between Longleaf & Sandbar Willows. 5 to 8 ft. h. common.

No. 5125. Spreading or decumbent very thorny bush. No. 5125a. Dalea saundersii Parish. (fremontii Torr. not D.)

No. 5126. Abronia. ~~exalata Standley~~ A. turbinata Owens Lake.

No. 5127. Mimulus. trimetanthe pilosa (Benth.) Greene. Det. A.L.G. Corolla yellow (straw-yellow series) with equal lobes. Two spots of purple at sinuses. Densely pilose herbage. Calyx nearly as long as tube, densely pilose. Corolla broad-tubular with reflexed-spreading lobes. Stream bank - Carroll Ck

No. 5128. Cyperus aristatus Rottb. Streambank - Carroll Ck. - Asclepias mexicana - 4 to 5 ft. h. many-stemmed bush - like plant, more robust than in Great Valley.

No. 5129. Stanleya pinnata Britt. - Ash Ck.

No. 5130. Fraxinus velutina Torr. var. coriacea (Wats.) Rehd. Ash Creek = only this tree!; - on Cottonwood, only Populus fremonti! On Carroll Creek = Cottonwood & Ash! See p. 171.

No. 5130a.

No. 5131. Eriogonum baileyi var. brachyanthum Cov. Olancha

No. 5132. Atriplex confertifolia. Spiny rounded heavily fruiting bush 2 to 3 ft. h. - Cottonwood Ck

No. 5133. Brickellia multiflora Kell. det. Philip Wells & RCB. Many-stemmed shrub 5 ft. h. Erect. Cottonwood Ck Composite

No. 5134. Chrysothamnus nauseosus (Pall.) Britt. (Immature) Many-stemmed roundish bush 4 ft. h. Composite. Carroll Ck

No. 5135. sterile material of Hoplopappus linearifolius (discarded). Composite, roundish scrubby bush 1½ to 3 ft. h. - Carrol Ck

Inyo Co. Lone Pine. July 27, 1912

3700 ft.

No. 5136. Prunus fasciculata Gray. Very rough bush, spreading, angular - 3 to 4 ft. h.

No. 5137. ~~Cardius~~ Cirsium mohavense Owen's Lake, - upper end.

No. 5138. Forestieria neomexicana Gray. Forming thickets, 6 to 10 ft. h. Pale drab smooth bark with yellowish cast.

Lone Pine ~~Tuttle~~ Ck.

- Was taken up to the intake of the Los Angeles Aqueduct by W.O. Petersen, Division Engineer; also the next day to Olancha. Learned a great deal about the difficulties of the Aqueduct work and its relation to the geological features. Petersen said today, incidentally: The things one recalls with pleasure are the difficult things he has done, the very hard things, these he takes pleasure in looking back on. One doesn't take any pleasure

Primer of Lar. Trees.

- Timber Line, what causes
- Longevity of tree, factors controlling it, exhaustion of available soil areas under nutrition. Theoretically a sequoia has an indefinite life.
- Causes of death in trees, old age, exhaustion, borers, disease

in recalling or trying to recall those portions of his life in which nothing happened. — which is all very true. If one sits around a campfire with a company of trailers or packers or teamsters its the days difficulties and the way in which they were met that they talk about.

- Robinia pseudacacia. The [illegible] of Los Angeles is planting trees for timber on its municipally owned lands in Inyo Co. They have put out 170,000 seedlings of Black Locust. They are doing very well - Loss about 10 per cent. Irrigated. Telegraph poles in Owen's Valley are usually Black Locust poles. They do not have to be large - a small diameter will do on a [illegible] of their toughness, strength and durability. - Sep. 168.

Sierra Club Outing Party Talk.

The Firs of the Sierra Nevada.

General habit of a fir; its terminal bud and a circle of 3 to 5 lateral buds produced each year give rise to its exceedingly symmetrical habit — most symmetrical of our trees. The horizontal branches produce a terminal bud and two lateral buds in continued succession which gives rise to flat fan-like sprays. The flat fan-like sprays rising in successive stratification to the top are very beautiful. On account of the regular symmetry of branching you can tell the age of a young fir tree by counting the circles or whorls of branches. You could also in an old tree if so many branches had not been killed out.

Sierra Nevada Two firs { White — lower alt. White bark, whitish inside; leaves with a little stalk at base
Red — high alt. Red bark — blood red inside leaves with the base enlarged into a little foot.

Firs have cones erect on branches. You never normally find a cone on the ground. Go to pieces on tree. When young the bark is very smooth & silvery and a young tree of both species is called Silver Fir, a name which properly belongs to the European species.

No hemlocks in this region. No Spruces in this region. No true species in S.N. Flat sprays of White Fir. Coral-like sprays Red Fir — fishbone sort of thing.

Black Cottonwood in Kern. Aspen in Big Arroyo & head of Kern Cañon

Meanings of Scientific Names of Pines.

Pinus ponderosa — discov. by Douglas, largest pine then known to Europeans.

Pinus lambertiana — its discov. by Douglas

History of Douglas.

Pinus jeffreyi — after John Jeffrey, its discov.

Pinus Balfouriana — Balfour of the celebrated Edinburgh University.

Pinus flexilis — its pliable branchlets

Pinus monticola — inhabiting the nuts.

Pinus albicaulis — white-barked.

Douglas and Jeffrey.

— Douglas was strong of body, tremendous powers of endurance, had both great moral and physical courage, and great sagacity and tact in meeting the savage indians with whom he came in contact. His resourcefulness was so great that they learned to respect and fear him. They were about to put him to death when he made fire by use of the sun and his botanical pocket microscope which so amazed them that they decided he must be a great medicine man.

— Jeffrey appears to have been something of an adventurer. He was the first man that I know to go into the Sierra Nevada for other than gold seeking purposes, for the sake of its natural wonders. He was I believe the first Sierra Club mountain.

— Both were Scotchman, both were wonderful explorers, both met a tragic death in pursuit of botanical exploration, Douglas in the Sandwich Islands, Jeffrey in the Colorado Desert. I should like to think sometime as I wander also Sierra Rivers that the trees associated with the name sing a requiem to their memory.

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Alexander, E.W. Santa Barbara
Allen, Prof. C.G. Stanford
Allen, Gertrude, San D. R.F.D. # 2, B 155.
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Anderson, Frances, Mt. View
Anthony, Edith A. Fruitvale, 3905 Neil
Arnes, Leo. W. Pasadena
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" Evelyn, Calistoga, Box 136.
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" Kesson, " "
Aune, Maren, S.F.
Austin, D. " "

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Bailey, Ray. Berk
" H.E. L.A.
" Bessie, Santa Cruz 23 Minnie
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Bare, Helen & Robt. S.F. 2475 Clay
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Bund, John S. U.C.
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Clapp Edith, Berk
Cooper Lena Ellen, L.A. High
Crowns, Mary R. Sac. 1823 H
Currier, Col. J.H. S.F.
Churchill, O.P.

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Earl B
Eddy, Geo W. L.A.
Eby, Ida Bel, Calistoga. Box 136 & Tom
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Forsyth, J.W. Gilroy
Fox. Chas. J. L.A. schools
Frank, Irving H. & Nathan, S.F.

Frye, Eloise, Berk
Frazeur, Mrs Laura, Chicago
Glisan, R.L. Portland
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Leroux, Jeanne, Oakland, 248 Mather
Lockwood, Lois A, Claremont
Lynch, Maisie H. Pasadena 595 Summit
Medeco, S.C.
Macomber, Clara, Ocean Park
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Merrill, Esther. "
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Potwin, Leslie G. Berk. (Granada)
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Putnam, Chas. W. Boston
" T.M. Berk
Phontrides, A.E. Cambridge (Greek)

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Reeve, Enid, Pasadena, 637 Winona
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Sanborn, Miss Mercy W. Long Beach The Mun
Sattler, H.H. S.F. + Mrs.
Seymour, Harry B. Sac
Shafter, Lottie R. San J.
" Helen, Oak
Sherril, Miles S. Berk
Shepardson, Everett, L.A. Super-Man. Training
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Whitworth, Fred. Berk
Wilding Arthur W. S.F. Alaska Conn.
Wilkinson, Mr + Mrs C.W. Berk. Bern.
Wood, Elizabeth A. Claremont
Wright, Cedric, Mr + Mrs, Alameda
White, Mr + Mrs Geo. A. Santa Bar
" Margaret, 1233½ State St.
White, E.L.
Wright, G.L.

Zeile, Elsie, Berk., 1527 Hop.

Yoshioke.

Fortin
Mrs Schleeth } Commissary.

Lone Pine to Mohave } July 29

— Yucca arborescens, just, s of Owen's Lake.
— Tushin } Commissary
— Schleeth, Miss }

— Populus fremontii. In front of the road station house at Little Lake is a row of Cottonwoods — mostly dead. They were pollarded at the wrong time of year says the Railway Conductor.

No. 5139. Grass. Lone Pine; desert
Small Part of a very heavy stool! Sporobolus airoides.
No. 5140. Dalea polyadenia Torr.
Low spreading bush 1 ft. h. Lone Pine; desert
No. 5141. Grass. Part of a very heavy stool! (Sporobolus airoides.) Lone Pine; desert.
No. 5142. Glycyrrhiza lepidota Pursh.
Erect, 1½ to 2 ft. h. Common in moist lands. Lone Pine.
No. 5143. Forestieria neomexicana Gray.
Shrub 5 or 6 ft. h. Lone Pine Ck.
No. 5144.
Shrub, compact & erect, 5 ft. h. Lone Pine
No. 5145. Atriplex parryi Wats.
Rounded bush 12 to 16 in. h. from a woody (total) stems 4 to 12 in. h. and ½ to 1 inch diam. Lone Pine; desert.
No. 5146. Atriplex torreyi see p. 166. A. torreyi.
Rounded bushes 3 to 4 ft. h. Lone Pine; desert.
No. 5147. Grass. Elymus cinereus.
Forming a dense clumpar stool which

Shrubs of California.

— Spines and Thorns. The old flowering branches of desert shrubs become dead and spiny the next year.
— Titles of Chapters.
— Desert Sage*, Greasewood and Rabbit Brush.
*Perhaps better, Sage-brush;
— Odors of Native Shrubs.
— Honey-yielding Native Shrubs.
— Arrowwood
— Floristic distribution of Peanothus.
— Fire & fuel. What roots of desert shrubs are used for fuel?
— Is the Screw-bean Mesquite the more common species of " ?

a man could scarcely surround with his arms at the ground; 6 to 8 ft. h.
No. 5148. Erigeron divergens T. & G.
Lone Pine; moist meadows.
No. 5149. Atriplex parryi Wats.
The old leafless spines are at the very base of this 1 ft. h. plant and prickled very troublesomely when I took out these specimens from the individual. Lone Pine desert.

Lone Pine.

Sayings of Miss Haskell regarding Boston

– When Boston dies and his body is cut open there will be found engraved on its heart the word "Soft"

– To Cantabrigians a new way of serving grapefruit is as important as the discovery of radium.

– Arnold Bennet is to them the greatest novelist of the day because he never makes mistakes like Wells or Doyle.

– Oh, for a man who has not the look on his face: "Show me a leader"!

No. 5150. Polygonum lapathifolium. Flowers white; no bristles on sheaths. Lone Pine; by streamlets in moist meds.

No. 5151. Polygonum persicaria L. Ciliation on sheaths; flowers red. With preced.

July 28, 1912

Camp Notes.

– Quart of peaches, soak over night in boiling dried water, turn off the water and boil with teaspoonful of soda, skim off the skins as they come to the surface, pour off the water and then cook in boiling water. The result will be a very fine product, practically equal to canned peaches.

– Patterson has a bake oven which is rather light and would not be a burden in a pack. He also has a light oven with an ingenious close fitting lid which sets down into the top and with clamps inside something like a fruit jar. He says it came from one of these fireless cooker devices.

– Hudson Bay Company blankets → Patterson's; see p. 29

No. 5152. Cichoriaceae. Lactuca pulchella blue flo. Wet stream banks. Lone Pine.

No. 5153. Cicuta douglasii C. & R. Large plant 7 ft. h. Flowering branch taken is only one branch of the great inflorescence. Leaves larger than taken. Water poured in a stream from 3 lower internodes when cut; like water from a hose!! Stems an inch or somewhat more in diameter. Streamlet. Lone Pine.

Addresses

- John Lydgate, ~~Honolulu~~, engineer but also fine botanist Lihue, Kauai - acc Miss Haskell.
- Mrs. Ashelli (Mrs. Azelli), tremendously int. in botany, show place in Oakland.
- Geo. U. Wray, Milo, Tulare Co. Rancher and Mountain guide
- Harry W. Lambdin, Manager of Porterville Recorder.
- O. W. Petersen Div. Eng. L.A. Univ. Cal. 1904. (Burpee) Lone Pine
- Barker, 724 S. Broadway L.A.
- Monaghan + Murphy at Needles for Indian boatmen; store
- Francis Sellew + L. M. Lamson in charge Govmt Reclamation work, Yuma Project, Yuma.

No. 5154. Carex Nebraskensis Dewey. wet nidus, Lone Pine.
No. 5155. Herpestis rotundifolia. Flowers white; corolla lobes 5, spreading rotately from a short tube. Style 1, stigmas 2. Aquatic! - But does not agree at all with the figure or descrip. of this species in Britton's Ill. Fl.!!

Questions

- Pomelo, its origin. "A hybrid between Orange + Lemon" - acc. to a fellow-traveler. Can't be.
- Lightning, its effect on trees
- Lichens, highest sp. in alt?
- English - post American Express arrangement from St. Britain to any part of U.S., 3lb = 30c, 7lbs for 49c, 11 lbs for 79c. See Examiner, July 10, 1912.
- Sand Verbena + Verbena of Gardens
- Twisting of pines?
- Timber line?
- Frosting flowers in alpine indus?
- Gypsy moth + Chestnut blight
- White Lizards of desert?
- Michael Angelo's Pieta

Diemage Bag List.

- Sleeping Bag
- Oil Silk
- 1 heavy suit underclothes
- 1 light " "
- 2 bandanas
- 2 light pair socks
- 1 heavy pair socks
- Toilet paper
- Soap box + toilet soap
- Shaving soap.
- Laundry soap (
- Tin wash pan
- mosquito netting
- Gloves
- 1 army shirt
- 1 colored shirt
- 1 pair corduroy trousers
- 1 " Khaki "
- tennis shoes
- 1 feather pillowlet
- toothpicks
- silk bandannas
- stone-brand lantern.
- Name tag for clothing + affect
- Flap over Field Book pocket in
- Button hooks for knife and lens strings.

Old Mission Brand
Akermann + Tuffley
North San Diego

1 quart can = large olives
2 " " = larger size
still says Miss Waterman

- Hudson Bay Co's blankets, double, green with a broad black stripe across the end, i.e. near the end, below the stripe 4 bars, making a 4-pt. 10-lb. blanket. - - cost $10.00
Bot in Montreal by Patterson and used in his forest service work.

Japanese bandanas.

On the trip from Cottonwood to Lone Pine were Mary Haskell, Francis Farquahr, Tom Elliott of Portland, and Phontrides the Greek. Miss Haskell helped collect and so fell behind with us.

1 doz. = Sadlers, $4.50 1907

Barstow addresses.

Miss Abbie Louise Waterman
Mrs A.C. Scott (Annie).
Mrs R. W. Waterman
Mr. J. Herbert Manson, foreman
Mr. Harry Lamb,
Mrs. Freeman, San Bernardino school teacher.
Miss Bragg,

- Gays of the Scottish Cavaliers by Aytoun.
- Lanier: Into the woods my Masterment

- 2548 Fillmore Miss Tucker + Miss Morrow
Columbia Club